Low Blood Pressure

A Medical Dictionary, Bibliography,
and Annotated Research Guide to
Internet References

James N. Parker, M.D.
and Philip M. Parker, Ph.D., Editors

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The collective knowledge generated from academic and applied research summarized in various references has been critical in the creation of this book which is best viewed as a comprehensive compilation and collection of information prepared by various official agencies which produce publications on low blood pressure. Books in this series draw from various agencies and institutions associated with the United States Department of Health and Human Services, and in particular, the Office of the Secretary of Health and Human Services (OS), the Administration for Children and Families (ACF), the Administration on Aging (AOA), the Agency for Healthcare Research and Quality (AHRQ), the Agency for Toxic Substances and Disease Registry (ATSDR), the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the Healthcare Financing Administration (HCFA), the Health Resources and Services Administration (HRSA), the Indian Health Service (IHS), the institutions of the National Institutes of Health (NIH), the Program Support Center (PSC), and the Substance Abuse and Mental Health Services Administration (SAMHSA). In addition to these sources, information gathered from the National Library of Medicine, the United States Patent Office, the European Union, and their related organizations has been invaluable in the creation of this book. Some of the work represented was financially supported by the Research and Development Committee at INSEAD. This support is gratefully acknowledged. Finally, special thanks are owed to Tiffany Freeman for her excellent editorial support.

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FORWARD

In March 2001, the National Institutes of Health issued the following warning: "The number of Web sites offering health-related resources grows every day. Many sites provide valuable information, while others may have information that is unreliable or misleading."[1] Furthermore, because of the rapid increase in Internet-based information, many hours can be wasted searching, selecting, and printing. Since only the smallest fraction of information dealing with low blood pressure is indexed in search engines, such as **www.google.com** or others, a non-systematic approach to Internet research can be not only time consuming, but also incomplete. This book was created for medical professionals, students, and members of the general public who want to know as much as possible about low blood pressure, using the most advanced research tools available and spending the least amount of time doing so.

In addition to offering a structured and comprehensive bibliography, the pages that follow will tell you where and how to find reliable information covering virtually all topics related to low blood pressure, from the essentials to the most advanced areas of research. Public, academic, government, and peer-reviewed research studies are emphasized. Various abstracts are reproduced to give you some of the latest official information available to date on low blood pressure. Abundant guidance is given on how to obtain free-of-charge primary research results via the Internet. **While this book focuses on the field of medicine, when some sources provide access to non-medical information relating to low blood pressure, these are noted in the text.**

E-book and electronic versions of this book are fully interactive with each of the Internet sites mentioned (clicking on a hyperlink automatically opens your browser to the site indicated). If you are using the hard copy version of this book, you can access a cited Web site by typing the provided Web address directly into your Internet browser. You may find it useful to refer to synonyms or related terms when accessing these Internet databases. **NOTE:** At the time of publication, the Web addresses were functional. However, some links may fail due to URL address changes, which is a common occurrence on the Internet.

For readers unfamiliar with the Internet, detailed instructions are offered on how to access electronic resources. For readers unfamiliar with medical terminology, a comprehensive glossary is provided. For readers without access to Internet resources, a directory of medical libraries, that have or can locate references cited here, is given. We hope these resources will prove useful to the widest possible audience seeking information on low blood pressure.

The Editors

[1] From the NIH, National Cancer Institute (NCI): **http://www.cancer.gov/cancerinfo/ten-things-to-know**.

CHAPTER 1. STUDIES ON LOW BLOOD PRESSURE

Overview

In this chapter, we will show you how to locate peer-reviewed references and studies on low blood pressure.

The Combined Health Information Database

The Combined Health Information Database summarizes studies across numerous federal agencies. To limit your investigation to research studies and low blood pressure, you will need to use the advanced search options. First, go to **http://chid.nih.gov/index.html**. From there, select the "Detailed Search" option (or go directly to that page with the following hyperlink: **http://chid.nih.gov/detail/detail.html**). The trick in extracting studies is found in the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Journal Article." At the top of the search form, select the number of records you would like to see (we recommend 100) and check the box to display "whole records." We recommend that you type "low blood pressure" (or synonyms) into the "For these words:" box. Consider using the option "anywhere in record" to make your search as broad as possible. If you want to limit the search to only a particular field, such as the title of the journal, then select this option in the "Search in these fields" drop box. The following is what you can expect from this type of search:

- **Heart in Uremia: Role of Hypertension, Hypotension, and Sleep Apnea**

  Source: American Journal of Kidney Diseases. 38(4 Supplement 1): S38-S46. October 2001.

  Contact: Available from W.B. Saunders Company. Periodicals Department, 6277 Sea Harbor Drive, Orlando, FL 32887-4800. (800) 654-2452 or (407) 345-4000.

  Summary: Cardiovascular disease is the leading cause of morbidity (illness) and mortality (death) in patients with end stage renal (kidney) disease (ESRD). The causes of this morbidity and mortality include those usually found in the general population, those related to the uremic status, and those related to dialysis treatment. This article focuses on the specific roles of hypertension (high blood pressure), hypotension (low

blood pressure), anemia (low levels of hemoglobin, the oxygen carrying parts of the blood), hypoalbuminemia (low levels of protein in the blood), malnutrition, dyslipidemia (unhealthy levels of fats in the blood), reactive C protein, calcium-phosphate product, dialysis modalities (hemodialysis versus peritoneal dialysis), and hyperhomocysteinemia. The authors put special emphasis on hyperparathyroidism as a traditional toxin. The emergent role of sleep apnea has been confirmed in animal models as well as in humans studied using polysomnography. There are difficulties in diagnosing coronary disease, because angiography has some risks, is expensive, and should be reserved for patients having symptoms of heart failure, patients with diabetes mellitus, or patients entering a transplantation list. This allows patients with coronary disease to undergo revascularization (adding blood vessels) through coronary artery bypass (preferably) or percutaneous transluminal angioplasty. Patients for whom surgery is not appropriate should be treated using more traditional medical procedures. 2 figures. 1 table. 36 references.

- **Achievement and Safety of a Low Blood Pressure Goal in Chronic Renal Disease: The Modification of Diet in Renal Disease Study Group**

  Source: Hypertension. 29(2): 641-650. February 1997.

  Contact: Available from American Heart Association. 7272 Greenville Avenue, Dallas, TX 75231-4596.

  Summary: The Modification of Diet in Renal Disease Study (MDRDS) showed a beneficial effect of a lower than usual blood pressure (BP) goal on the progression of renal disease in patients with proteinuria. This article reports on a study which analyzed the achieved BP, baseline characteristics that helped or hindered achievement of the BP goals, and safety of the BP interventions in the MDRDS. Patients (n = 585) were randomly assigned to either a usual or low BP goal (mean arterial pressure less than 107 or less than 92 mm Hg, respectively). Few patients had a history of cardiovascular disease. All antihypertensive agents were permitted, but angiotensin converting enzyme (ACE) inhibitors (with or without diuretics) followed by calcium channel blockers were preferred. The mean of the arterial pressures during followup in the low and usual BP groups was 93,.0 and 97.7 mm Hg, respectively. Followup BP was significantly higher in subgroups of patients with preexisting hypertension, baseline mean arterial pressure greater than 92 mm Hg, a diagnosis of polycystic kidney disease or glomerular diseases, baseline urinary protein excretion greater than 1 g per day, age greater than 61 years, and black race. The frequency of medication changes and incidence of symptoms of low BP were greater in the low BP group, but there were not significant differences between BP groups in stop points, hospitalizations, or death. When data from both groups were combined, each 1 mm Hg increase in followup systolic BP was associated with a 1.35 times greater risk of hospitalization for cardiovascular or cerebrovascular disease. The authors conclude that lower BP than usually recommended for the prevention of cardiovascular disease is achievable by several medication regimens without serious adverse effects in patients with chronic renal disease without cardiovascular disease. 1 figure. 7 tables. 40 references. (AA-M).

- **Topsy-Turvy World of Postural Hypotension**

  Source: Diabetes Forecast. 52(3): 76-79. March 1999.

  Contact: Available from American Diabetes Association. 1701 North Beauregard Street, Alexandria, VA 22311. (800) 232-3472. Website: www.diabetes.org.

Summary: This article discusses the problem of postural hypotension. The symptoms of this condition, which is low blood pressure caused by standing up, include dizziness, light-headedness, blurred vision, weakness, and fatigue. People who have diabetes may experience postural hypotension as a complication of autonomic neuropathy. As autonomic neuropathy progresses, the autonomic nervous system loses its reactive ability, so people who have this complication can experience rapidly changing highs and lows in blood pressure that make their head swim. The article explains how the body normally maintains blood pressure when a person stands and how it reacts in those who have autonomic neuropathy. Although physicians can perform some tests that will help determine if a person has postural hypotension, this condition is not something that physicians recognize well. If a diagnosis of postural hypotension is made, the next step is to figure out what is causing it and how to treat it. Regardless of whether autonomic neuropathy or other factors are the cause of postural hypotension, much of the treatment focuses on relieving the symptoms and removing factors that may aggravate the condition. Drugs may also be used to the condition. The article also addresses the issue of treating postural hypotension in people who also have hypertension and stresses the need to tailor treatment for postural hypotension to a person's specific needs.

- **Low Blood Pressure and Incidence of Dementia in a Very Old Sample: Dependent on Initial Cognition**

  Source: JAGS. 47(6): 723-726. June 1999.

  Summary: This population-based study of 304 nondemented people in Sweden, aged 75 to 96 years at baseline, examined whether initially low blood pressure is related to the incidence of dementia. DSM-III-R criteria were used for dementia with Hachinski's scale being used for a differential diagnosis between Alzheimer's disease (AD) and vascular dementia. Criteria for AD were similar to those of the NINCDS-ADRDA criteria. The diagnosis of dementia was given after consensus among three independent physicians. Arterial blood pressure, antihypertensive drug use, and medical histories were determined. The Cox proportional hazards regression model was used to calculate the relative risk of developing dementia in relation to baseline blood pressure levels. After an average of 3 years, 81 dementia cases were identified. Those with systolic pressure equal to or greater than 140 mm Hg had a significantly higher risk of dementia and AD. A baseline Mini-Mental State Examination (MMSE) of less than 24 significantly predicted the occurrence of dementia, and systolic pressure equal to or greater than 140 mm Hg was significantly related to MMSE scores of less than 24 at baseline. These results suggest that low blood pressure may be an early correlate of a dementing process, although researchers believe a causative effect cannot be definitely ruled out. 2 tables, 21 references. (AA-M).

Federally Funded Research on Low Blood Pressure

The U.S. Government supports a variety of research studies relating to low blood pressure. These studies are tracked by the Office of Extramural Research at the National Institutes of Health.[2] CRISP (Computerized Retrieval of Information on Scientific Projects) is a searchable

[2] Healthcare projects are funded by the National Institutes of Health (NIH), Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), Food and Drug Administration (FDA), Centers for Disease Control and Prevention (CDCP), Agency for Healthcare Research and Quality (AHRQ), and Office of Assistant Secretary of Health (OASH).

database of federally funded biomedical research projects conducted at universities, hospitals, and other institutions.

Search the CRISP Web site at **http://crisp.cit.nih.gov/crisp/crisp_query.generate_screen**. You will have the option to perform targeted searches by various criteria, including geography, date, and topics related to low blood pressure.

For most of the studies, the agencies reporting into CRISP provide summaries or abstracts. As opposed to clinical trial research using patients, many federally funded studies use animals or simulated models to explore low blood pressure. The following is typical of the type of information found when searching the CRISP database for low blood pressure:

- **Project Title: BIOCHEMISTRY AND GENETICS OF HYPERTENSION**

  Principal Investigator & Institution: Rapp, John P.; Professor and Chairman; Physiology/Molecular Medicine; Medical College of Ohio at Toledo Research & Grants Admin. Toledo, Oh 436145804

  Timing: Fiscal Year 2001; Project Start 01-JUN-1988; Project End 30-MAY-2003

  Summary: The overall objective is to identify-the loci which cause genetic differences in blood pressure in the rat. Because hypertension in animals and humans is a complex polygenic disease it can best be understood genetically in animals where controlled breeding is possible. We have focused our genetic studies on candidate genes in the inbred Dahl salt-hypertension sensitive (S) and inbred Dahl salt-hypertension resistant (R) rats. Genetic polymorphisms are sought at the DNA level in or near genetic loci thought (on the basis of their known biochemical/ physiological actions) to be relevant to blood pressure regulation. It is determined if a component of blood pressure and genotypes at the candidate locus cosegregate in populations derived from crosses of S and R, or S and other contrasting "control" strains. If so, this establishes the candidate locus (or an unknown closely linked locus) as a cause for genetic differences in blood pressure. DNA sequence analysis of the candidate alleles involved is then required to find a structural difference that is likely to have functional consequences with regard to blood pressure. If cosegregation is negative the candidate locus can be rejected as causing blood pressure differences provided the experiments have adequate statistical power and several different populations are studied. For candidate loci which cosegregate with blood pressure, the result will be con-firmed by the production of congenic strains. The **low blood pressure** allele from a control strain is transferred to the S genetic background by the standard genetic technique of repeated backcrossing to S with counter selection for the **low blood pressure** allele. The congenic S strain should have lower blood pressure than the parental S strain if in fact the allele transferred lowers blood pressure. "Double congenic" strains will be produced by crossing two single congenics each of which carries genes for **low blood pressure** at different loci on the S genetic background. Comparisons of blood pressure among double and single congenics with the parental S strain will allow definition of interactions between the loci involved. Initial studies show that such interactions are required for really high levels of genetically regulated blood pressure to be achieved. It is likely that understanding such complexity requires animal breeding techniques, and cannot be initially unraveled in work with humans.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: BLOOD PRESSURE CANDIDATE GENE SCREENING--A NEW PARADIGM**

  Principal Investigator & Institution: Cicila, George T.; Physiology/Molecular Medicine; Medical College of Ohio at Toledo Research & Grants Admin. Toledo, Oh 436145804

  Timing: Fiscal Year 2001; Project Start 01-JUL-1999; Project End 30-JUN-2003

  Summary: (Adapted from the Investigator's Abstract) The essential mechanisms (and the genes underlying them) leading to hypertension need identification for better understanding and treatment of this complex disorder. The most direct way of accomplishing this is to identify genes regulating blood pressure in animal models of genetic hypertension. The applicants have linked loci on rat chromosomes 3 and 7 to blood pressure quantitative trait loci (BP QTL) in a segregating population bred from inbred Dahl salt-sensitive (S) and salt-resistant (R) rats fed a high salt diet. Introgression of R-rat derived chromosomal regions containing these two QTLs into S rats resulted in congenic strains with significantly lower blood pressure and cardiac mass compared to S rats, confirming the presence of BP QTL in the introgressed regions of chromosomes 3 and 7. Similar methodology has been used by others to develop congenic strains carrying BP QTLs located on six other chromosomes, resulting in a panel of eight congenic strains derived from the Dahl rat model of blood pressure salt-sensitivity. The applicant hypothesizes that gene(s) underlying a given BP QTL may be differentially expressed in target organs/tissues. If so, such a gene should also be differentially regulated in congenic strains carrying different BP QTL. Gene(s) responsible for a QTL's effect should show a congenic strain-specific differential-pattern of expression in a target organ(s) and should map to the chromosomal interval carried by that particular congenic strain. Therefore, genes having such characteristics will be superior candidates as genes responsible for, at least in part, a specific BP QTL. The applicant proposes to identify candidate genes for BP QTL as follows: Differentially expressed genes will be identified in the kidneys of S and R rats, on both low NaCl (genetic-differences) and high NaCl diets (salt-responsive). Renal RNA expression of such differentially-expressed genes will be examined in a panel of congenic strains carrying Dahl rat BP QTL, where each strain carries a **low blood pressure** allele for a different BP QTL on a background of S-rat alleles. Genes having a congenic strain-specific pattern of differential gene expression will be mapped to determine their genomic location. Genes with a 1) congenic strain-specific pattern of differential gene expression and 2) mapping to the introgressed chromosomal region containing a specific BP QTL, will be considered strong candidates for the gene(s) responsible for blood pressure differences associated with this QTL. This new approach should accelerate the identification of strong candidate genes for particular BP QTL and, potentially, of new blood pressure regulatory mechanisms.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: GENETICS OF HYPERTENSION IN THE FRAMINGHAM HEART STUDY**

  Principal Investigator & Institution: Lifton, Richard P.; Chairman, Department of Genetics; Yale University 47 College Street, Suite 203 New Haven, Ct 065208047

  Timing: Fiscal Year 2001; Project Start 01-FEB-1996; Project End 31-JAN-2006

  Summary: (Adapted from the applicant's abstract) Work of the SCOR has demonstrated the key role of inherited variation in renal salt handling in blood pressure variation in humans. These findings from rate Mendelian diseases raise the question of whether more common variants in genes of this same pathway alter blood pressure in the

general population. This project investigates the causes of inherited variation in blood pressure, end-stage renal disease and left ventricular hypertrophy. Study populations are 4100 members of the Framingham Heart Study and multiplex kindreds with end-stage renal disease recruited from the GAMBRO dialysis centers. Specific Aim 1 will investigate the impact of single nucleotide polymorphisms in genes in which mutations cause inherited forms of high or **low blood pressure** on blood pressure and LVH in 4000 subjects from the Framingham Heart Study. This Study has substantial power to detect even modest effects imparted by these variants. Specific Aim 2 will work toward the positional cloning of a blood pressure locus on chromosome 17 that demonstrated a lod score of 4.7 for linkage to systolic blood pressure in families from Framingham Study.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: MDRD LONG TERM FOLLOW UP STUDY**

  Principal Investigator & Institution: Beck, Gerald J.; Acting Chairman; Cleveland Clinic Foundation 9500 Euclid Ave Cleveland, Oh 44195

  Timing: Fiscal Year 1999; Project Start 30-SEP-1984; Project End 30-SEP-2004

  Summary: The Modification of Diet in Renal Disease (MDRD) Study was a randomized clinical trial, funded by NIDDK, to determine the effect of dietary protein restriction and strict blood pressure control on the progression of chronic renal diseases of diverse causes in 840 patients. The planned duration of follow-up was 2-4 years, hence, the rate of decline in glomerular filtration rate (GFR), rather than the incidence of renal failure or death, was the primary outcome. The full-scale trial ended patient follow-up in January 1993. The purpose of this proposal is for the Data Coordinating Center (DCC) to obtain long-term followup data on the study Cohort and to continue data analysis. The full-scale trial showed a beneficial effect of the **low blood pressure** goal in patients with proteinuria and suggested a beneficial effect of reduced protein intake in patients with advanced renal disease (baseline GFR 13-24 mL/min/1.73 m2). However, the length of follow-up was insufficient to determine the efficacy of the low protein diet in patients with moderate renal disease (baseline GFR 25-55 ml/min/1.73m2, N = 585). During 10 months of additional follow-up after the end of the full-scale trial, the number of patients in the GFR 25-55 group to reach renal failure increased from 31 to 55, and a trend suggesting a benefit of the low protein diet on renal failure or death emerged (relative risk 0.63, 95% confidence interval: 0.30 - 1.02, p=.056). Based on observed rates of GFR decline, the projected number of patients in this group to reach renal failure increases to 163 by 9/96 and 263 by 9/2000, providing a unique opportunity for a much more accurate evaluation of this outcome. The primary goals of further follow-up are to assess the long-term effects of the diet and blood pressure interventions on 1) the incidence of renal failure or death and 2) nutritional status and cardiovascular outcomes prior to and following renal failure. Another fundamental goal is to document the long-term progression of renal disease by relating the extensive data from the full-scale study to long-term patient outcomes from the extended follow-up phase. Patient outcomes would be assessed from data provided by the patient and family, physicians' offices, hospital discharge summaries, and the USRDS. A pilot study demonstrating the feasibility of obtaining follow.up information has been completed. The MDRD Study Group has reported many results from the MDRD Study. This proposal will maintain this activity.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WHY DO METABOLIC RISK FACTORS CLUSTER WITH HYPERTENSION?**

  Principal Investigator & Institution: Kurtz, Theodore W.; Professor; Laboratory Medicine; University of California San Francisco 500 Parnassus Ave San Francisco, Ca 94122

  Timing: Fiscal Year 2002; Project Start 20-SEP-2000; Project End 31-JUL-2004

  Summary: (Adapted from the application) Insulin resistance has been frequently observed in patients with essential hypertension, although the mechanisms responsible for the hypertension "metabolic syndrome" and clustering of cardiovascular risk factors remain poorly understood. Evidence from both family studies and experimental animals indicates that genetic risk factors may play a significant role in the clustering of cardiovascular risk factors. The spontaneously hypertensive rat (SHR), a widely studied experimental animal model of human essential hypertension, also demonstrates increased plasma insulin levels and insulin resistance when compared with other strains with **low blood pressure.** The PI and her collaborators have derived a novel SHR congenic strain that provides an opportunity to investigate the clustering of hypertension and insulin resistance. By transferring a piece of chromosome 4 from the normotensive Brown Norway rat onto the genetic background of the SHR rat, the applicant has bracketed a specific chromosomal segment approximately 37 cM in size, that improves both blood pressure and insulin resistance in the SHR. This segment also contains the Cd36 gene, which encodes a fatty acid transporter that was previously thought to be a candidate in the pathogenesis of insulin resistance and blood pressure. The PI proposes to use meiotic mapping in an interval specific segregating population to narrowly map the blood pressure locus on chromosome 4, derive a congenic subline that carries the relevant segment of chromosome 4 and test the potential role of Cd36 in blood pressure control and insulin resistance in transgenic SHR by overexpressing this gene.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

E-Journals: PubMed Central[3]

PubMed Central (PMC) is a digital archive of life sciences journal literature developed and managed by the National Center for Biotechnology Information (NCBI) at the U.S. National Library of Medicine (NLM).[4] Access to this growing archive of e-journals is free and unrestricted.[5] To search, go to **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Pmc**, and type "low blood pressure" (or synonyms) into the search box. This search gives you access to full-text articles. The following is a sample of items found for low blood pressure in the PubMed Central database:

[3] Adapted from the National Library of Medicine: **http://www.pubmedcentral.nih.gov/about/intro.html**.

[4] With PubMed Central, NCBI is taking the lead in preservation and maintenance of open access to electronic literature, just as NLM has done for decades with printed biomedical literature. PubMed Central aims to become a world-class library of the digital age.

[5] The value of PubMed Central, in addition to its role as an archive, lies in the availability of data from diverse sources stored in a common format in a single repository. Many journals already have online publishing operations, and there is a growing tendency to publish material online only, to the exclusion of print.

- **Arrest of Endotoxin-Induced Hypotension by Transforming Growth Factor [beta]1.** by Perrella MA, Hsieh C, Lee W, Shieh S, Tsai J, Patterson C, Lowenstein CJ, Long NC, Haber E, Shore S, Lee M.; 1996 Mar 5; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=39908
- **Endothelial cell-specific knockout of connexin 43 causes hypotension and bradycardia in mice.** by Liao Y, Day KH, Damon DN, Duling BR.; 2001 Aug 14; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=55565
- **Hypotension and inflammatory cytokine gene expression triggered by factor Xa -- nitric oxide signaling.** by Papapetropoulos A, Piccardoni P, Cirino G, Bucci M, Sorrentino R, Cicala C, Johnson K, Zachariou V, Sessa WC, Altieri DC.; 1998 Apr 14; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=22560
- **NG-Methyl-L-Arginine Inhibits Tumor Necrosis Factor-Induced Hypotension: Implications for the Involvement of Nitric Oxide.** by Kilbourn RG, Gross SS, Jubran A, Adams J, Griffith OW, Levi R, Lodato RF.; 1990 May 1; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=53955
- **Postural hypotension induced by paroxetine.** by Andrews C, Pinner G.; 1998 Feb 21; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=28465

The National Library of Medicine: PubMed

One of the quickest and most comprehensive ways to find academic studies in both English and other languages is to use PubMed, maintained by the National Library of Medicine.[6] The advantage of PubMed over previously mentioned sources is that it covers a greater number of domestic and foreign references. It is also free to use. If the publisher has a Web site that offers full text of its journals, PubMed will provide links to that site, as well as to sites offering other related data. User registration, a subscription fee, or some other type of fee may be required to access the full text of articles in some journals.

To generate your own bibliography of studies dealing with low blood pressure, simply go to the PubMed Web site at **http://www.ncbi.nlm.nih.gov/pubmed**. Type "low blood pressure" (or synonyms) into the search box, and click "Go." The following is the type of output you can expect from PubMed for low blood pressure (hyperlinks lead to article summaries):

- **A nonpeptidyl mimic of superoxide dismutase, M40403, inhibits dose-limiting hypotension associated with interleukin-2 and increases its antitumor effects.**
  Author(s): Samlowski WE, Petersen R, Cuzzocrea S, Macarthur H, Burton D, McGregor JR, Salvemini D.
  Source: Nature Medicine. 2003 June; 9(6): 750-5. Epub 2003 May 05.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12730689&dopt=Abstract

[6] PubMed was developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM) at the National Institutes of Health (NIH). The PubMed database was developed in conjunction with publishers of biomedical literature as a search tool for accessing literature citations and linking to full-text journal articles at Web sites of participating publishers. Publishers that participate in PubMed supply NLM with their citations electronically prior to or at the time of publication.

- **Acetylcholinesterase inhibition in the treatment of hypotension.**
  Author(s): Schondorf R.
  Source: Journal of Neurology, Neurosurgery, and Psychiatry. 2003 September; 74(9): 1187.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12933916&dopt=Abstract

- **Acetylcholinesterase inhibition: a novel approach in the treatment of neurogenic orthostatic hypotension.**
  Author(s): Singer W, Opfer-Gehrking TL, McPhee BR, Hilz MJ, Bharucha AE, Low PA.
  Source: Journal of Neurology, Neurosurgery, and Psychiatry. 2003 September; 74(9): 1294-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12933939&dopt=Abstract

- **Achievement and safety of a low blood pressure goal in chronic renal disease. The Modification of Diet in Renal Disease Study Group.**
  Author(s): Lazarus JM, Bourgoignie JJ, Buckalew VM, Greene T, Levey AS, Milas NC, Paranandi L, Peterson JC, Porush JG, Rauch S, Soucie JM, Stollar C.
  Source: Hypertension. 1997 February; 29(2): 641-50.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9040451&dopt=Abstract

- **Aging well and aging poorly: primary and secondary low blood pressure.**
  Author(s): Harris TB.
  Source: The Journals of Gerontology. Series A, Biological Sciences and Medical Sciences. 2003 July; 58(7): 662-4; Discussion 669-70.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12865487&dopt=Abstract

- **Answer to case of the month #88. Spontaneous intracranial hypotension.**
  Author(s): Gandhi D, Goyal M, Miller W, Covert S.
  Source: Canadian Association of Radiologists Journal = Journal L'association Canadienne Des Radiologistes. 2003 April; 54(2): 126-8.
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  Author(s): Davani S, Bouhaddi M, Nezelof S, Vandel S, Regnard J, Kantelip JP.
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  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12942861&dopt=Abstract

- **Orthostatic hypotension and low blood pressure in organic dementia: a study of prevalence and related clinical characteristics.**
  Author(s): Passant U, Warkentin S, Gustafson L.
  Source: International Journal of Geriatric Psychiatry. 1997 March; 12(3): 395-403.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9152727&dopt=Abstract

- **Orthostatic hypotension: causes, classification, and treatment.**
  Author(s): Grubb BP, Kosinski DJ, Kanjwal Y.
  Source: Pacing and Clinical Electrophysiology : Pace. 2003 April; 26(4 Pt 1): 892-901. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12715851&dopt=Abstract

- **Otoacoustic emissions in patients with hypotension.**
  Author(s): Balatsouras DG, Korres S, Simaskos N, Kandiloros D, Ferekidis E, Economou C.
  Source: The Journal of Laryngology and Otology. 2003 April; 117(4): 265-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12816214&dopt=Abstract

- **Overweight is associated with lower serum leptin in Peruvian Indian than in Caucasian women: A dissociation contributing to low blood pressure?**
  Author(s): Lindgarde F, Soderberg S, Olsson T, Ercilla MB, Correa LR, Ahren B.
  Source: Metabolism: Clinical and Experimental. 2001 March; 50(3): 325-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11230786&dopt=Abstract

- **Pathophysiology of orthostatic hypotension after bed rest: paradoxical sympathetic withdrawal.**
  Author(s): Kamiya A, Michikami D, Fu Q, Iwase S, Hayano J, Kawada T, Mano T, Sunagawa K.
  Source: American Journal of Physiology. Heart and Circulatory Physiology. 2003 September; 285(3): H1158-67. Epub 2003 April 24.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12714328&dopt=Abstract

- **Patients with severe preeclampsia experience less hypotension during spinal anesthesia for elective cesarean delivery than healthy parturients: a prospective cohort comparison.**
  Author(s): Aya AG, Mangin R, Vialles N, Ferrer JM, Robert C, Ripart J, de La Coussaye JE.
  Source: Anesthesia and Analgesia. 2003 September; 97(3): 867-72.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12933418&dopt=Abstract

- **Pelvic pain, low blood pressure, and hemolysis after outpatient hysteroscopy in a patient with glucose-6-phosphate dehydrogenase deficiency.**
  Author(s): De Angelis C, Re ME, Santoro G.
  Source: Fertility and Sterility. 2003 June; 79(6): 1442-3.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12798896&dopt=Abstract

- **Periventricular white matter lucencies in patients with lacunar stroke. A marker of too high or too low blood pressure?**
  Author(s): Chamorro A, Pujol J, Saiz A, Vila N, Vilanova JC, Alday M, Blanc R.
  Source: Archives of Neurology. 1997 October; 54(10): 1284-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9341575&dopt=Abstract

- **Postextubation severe bronchospasm and hypotension triggered by exposure to a disinfectant spray.**
  Author(s): Licker M, Spiliopoulos A, Morel D, Chevalley C.
  Source: Anesthesiology. 2003 September; 99(3): 739-41.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12960559&dopt=Abstract

- **Psychiatric symptoms and low blood pressure.**
  Author(s): Mann A.
  Source: Bmj (Clinical Research Ed.). 1992 January 11; 304(6819): 64-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1737136&dopt=Abstract

- **Psychological aspects of high and low blood pressure.**
  Author(s): Pilgrim JA.
  Source: Psychological Medicine. 1994 February; 24(1): 9-14. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8208899&dopt=Abstract

- **Psychosomatic and psychosocial symptoms are associated with low blood pressure in Swedish schoolchildren.**
  Author(s): Borres MP, Tanaka H, Thulesius O.
  Source: Psychotherapy and Psychosomatics. 1998; 67(2): 88-93.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9556200&dopt=Abstract

- **Relationship between low blood pressure and depressive symptomatology in older people.**
  Author(s): Stroup-Benham CA, Markides KS, Black SA, Goodwin JS.
  Source: Journal of the American Geriatrics Society. 2000 March; 48(3): 250-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10733049&dopt=Abstract

- **Subdural haematoma: a potentially serious consequence of spontaneous intracranial hypotension.**
  Author(s): de Noronha RJ, Sharrack B, Hadjivassiliou M, Romanowski CA.
  Source: Journal of Neurology, Neurosurgery, and Psychiatry. 2003 June; 74(6): 752-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12754345&dopt=Abstract

- **Symptoms of low blood pressure.**
  Author(s): Simpson LO.
  Source: Bmj (Clinical Research Ed.). 1990 October 6; 301(6755): 815-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2224276&dopt=Abstract

- **Symptoms of low blood pressure.**
  Author(s): Mitchell GH.
  Source: Hosp Pract (Off Ed). 1992 February 15; 27(2): 14. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1735754&dopt=Abstract

- **Symptoms of low blood pressure: a population study.**
  Author(s): Wessely S, Nickson J, Cox B.
  Source: Bmj (Clinical Research Ed.). 1990 August 18-25; 301(6748): 362-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2400856&dopt=Abstract

- **The Bergen Blood Pressure Study: blood pressure changes, target organ damage and mortality in subjects with high and low blood pressure over 27 years.**
  Author(s): Mo R, Omvik P, Lund-Johansen P.
  Source: Blood Pressure. 1993 June; 2(2): 113-23.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8180723&dopt=Abstract

- **The influence of low blood pressure and baroreceptor activity on pain responses.**
  Author(s): Angrilli A, Mini A, Mucha RF, Rau H.
  Source: Physiology & Behavior. 1997 August; 62(2): 391-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9251985&dopt=Abstract

- **The influence of low-, normal-, and high-carbohydrate meals on blood pressure in elderly patients with postprandial hypotension.**
  Author(s): Vloet LC, Mehagnoul-Schipper DJ, Hoefnagels WH, Jansen RW.
  Source: The Journals of Gerontology. Series A, Biological Sciences and Medical Sciences. 2001 December; 56(12): M744-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11723147&dopt=Abstract

- **Three-year follow-up of middle-aged men with low blood pressure.**
  Author(s): Hedstrand H, Aberg H.
  Source: Acta Med Scand. 1976; 200(1-2): 119-121.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=961465&dopt=Abstract

- **Treatment for a nondisease: the case of low blood pressure.**
  Author(s): Robbins JM, Korda H, Shapiro MF.
  Source: Social Science & Medicine (1982). 1982; 16(1): 27-33.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7100954&dopt=Abstract

- **Unexpected incidence of low blood pressure 2 years after unilateral adrenalectomy for primary aldosteronism.**
  Author(s): Gordon RD, Hawkins PG, Hamlet SM, Tunny TJ, Klemm SA, Backmann AW, Finn WL.
  Source: Clinical and Experimental Pharmacology & Physiology. 1989 April; 16(4): 281-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2743620&dopt=Abstract

- **Urinary kallikrein excretion in grade school children with high and low blood pressure.**
  Author(s): Sinaiko AR, Glasser RJ, Gillum RF, Prineas RJ.
  Source: The Journal of Pediatrics. 1982 June; 100(6): 938-40.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6919582&dopt=Abstract

- **What is low blood pressure?**
  Author(s): Hatt G.
  Source: Lancet. 1992 April 25; 339(8800): 1049.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1349065&dopt=Abstract

CHAPTER 2. NUTRITION AND LOW BLOOD PRESSURE

Overview

In this chapter, we will show you how to find studies dedicated specifically to nutrition and low blood pressure.

Finding Nutrition Studies on Low Blood Pressure

The National Institutes of Health's Office of Dietary Supplements (ODS) offers a searchable bibliographic database called the IBIDS (International Bibliographic Information on Dietary Supplements; National Institutes of Health, Building 31, Room 1B29, 31 Center Drive, MSC 2086, Bethesda, Maryland 20892-2086, Tel: 301-435-2920, Fax: 301-480-1845, E-mail: ods@nih.gov). The IBIDS contains over 460,000 scientific citations and summaries about dietary supplements and nutrition as well as references to published international, scientific literature on dietary supplements such as vitamins, minerals, and botanicals.[7] The IBIDS includes references and citations to both human and animal research studies.

As a service of the ODS, access to the IBIDS database is available free of charge at the following Web address: **http://ods.od.nih.gov/databases/ibids.html**. After entering the search area, you have three choices: (1) IBIDS Consumer Database, (2) Full IBIDS Database, or (3) Peer Reviewed Citations Only.

Now that you have selected a database, click on the "Advanced" tab. An advanced search allows you to retrieve up to 100 fully explained references in a comprehensive format. Type "low blood pressure" (or synonyms) into the search box, and click "Go." To narrow the search, you can also select the "Title" field.

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[7] Adapted from **http://ods.od.nih.gov**. IBIDS is produced by the Office of Dietary Supplements (ODS) at the National Institutes of Health to assist the public, healthcare providers, educators, and researchers in locating credible, scientific information on dietary supplements. IBIDS was developed and will be maintained through an interagency partnership with the Food and Nutrition Information Center of the National Agricultural Library, U.S. Department of Agriculture.

The following information is typical of that found when using the "Full IBIDS Database" to search for "low blood pressure" (or a synonym):

- **The influence of low-, normal-, and high-carbohydrate meals on blood pressure in elderly patients with postprandial hypotension.**
  Author(s): Department of Geriatric Medicine, University Medical Center Nijmegen, The Netherlands.
  Source: Vloet, L C Mehagnoul Schipper, D J Hoefnagels, W H Jansen, R W J-Gerontol-A-Biol-Sci-Med-Sci. 2001 December; 56(12): M744-8 1079-5006

Federal Resources on Nutrition

In addition to the IBIDS, the United States Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA) provide many sources of information on general nutrition and health. Recommended resources include:

- healthfinder®, HHS's gateway to health information, including diet and nutrition: **http://www.healthfinder.gov/scripts/SearchContext.asp?topic=238&page=0**
- The United States Department of Agriculture's Web site dedicated to nutrition information: **www.nutrition.gov**
- The Food and Drug Administration's Web site for federal food safety information: **www.foodsafety.gov**
- The National Action Plan on Overweight and Obesity sponsored by the United States Surgeon General: **http://www.surgeongeneral.gov/topics/obesity/**
- The Center for Food Safety and Applied Nutrition has an Internet site sponsored by the Food and Drug Administration and the Department of Health and Human Services: **http://vm.cfsan.fda.gov/**
- Center for Nutrition Policy and Promotion sponsored by the United States Department of Agriculture: **http://www.usda.gov/cnpp/**
- Food and Nutrition Information Center, National Agricultural Library sponsored by the United States Department of Agriculture: **http://www.nal.usda.gov/fnic/**
- Food and Nutrition Service sponsored by the United States Department of Agriculture: **http://www.fns.usda.gov/fns/**

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering food and nutrition. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=174&layer=&from=subcats**
- Family Village: **http://www.familyvillage.wisc.edu/med_nutrition.html**
- Google: **http://directory.google.com/Top/Health/Nutrition/**
- Healthnotes: **http://www.healthnotes.com/**
- Open Directory Project: **http://dmoz.org/Health/Nutrition/**

- Yahoo.com: **http://dir.yahoo.com/Health/Nutrition/**
- WebMD®Health: **http://my.webmd.com/nutrition**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,00.html**

The following is a specific Web list relating to low blood pressure; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **Vitamins**

  Niacin
  Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
  Hyperlink:
  http://www.wholehealthmd.com/refshelf/substances_view/0,1525,892,00.html

  Pyridoxine
  Source: Integrative Medicine Communications; www.drkoop.com

  Vitamin B6 (pyridoxine)
  Source: Integrative Medicine Communications; www.drkoop.com

- **Minerals**

  Calcium Channel–Blockers
  Source: Prima Communications, Inc.www.personalhealthzone.com

- **Food and Diet**

  Garlic
  Source: Prima Communications, Inc.www.personalhealthzone.com

  Low-Salt Diet
  Source: Healthnotes, Inc.; www.healthnotes.com

  Vegetarian Diet
  Source: Healthnotes, Inc.; www.healthnotes.com

CHAPTER 3. ALTERNATIVE MEDICINE AND LOW BLOOD PRESSURE

Overview

In this chapter, we will begin by introducing you to official information sources on complementary and alternative medicine (CAM) relating to low blood pressure. At the conclusion of this chapter, we will provide additional sources.

National Center for Complementary and Alternative Medicine

The National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (**http://nccam.nih.gov/**) has created a link to the National Library of Medicine's databases to facilitate research for articles that specifically relate to low blood pressure and complementary medicine. To search the database, go to the following Web site: **http://www.nlm.nih.gov/nccam/camonpubmed.html**. Select "CAM on PubMed." Enter "low blood pressure" (or synonyms) into the search box. Click "Go." The following references provide information on particular aspects of complementary and alternative medicine that are related to low blood pressure:

- **Abnormalities of autonomic nervous system in hyperadrenergic orthostatic hypotension: description of a case.**
  Author(s): Sechi LA, De Carli S, Zingaro L, Di Poi E, Bartoli E.
  Source: International Journal of Cardiology. 1995 November 10; 52(1): 85-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8707442&dopt=Abstract

- **Acupuncture treatment of hypotension.**
  Author(s): Zhao CX.
  Source: J Tradit Chin Med. 1987 September; 7(3): 229-30. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3444357&dopt=Abstract

- **Alterations in reflex function contributing to syncope: orthostatic hypotension, carotid sinus hypersensitivity and drug-induced dysfunction.**
  Author(s): Hopson JR, Rea RF, Kienzle MG.
  Source: Herz. 1993 June; 18(3): 164-74. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8330851&dopt=Abstract

- **Biofeedback as a treatment for postural hypotension.**
  Author(s): Ince LP.
  Source: Psychosomatic Medicine. 1985 March-April; 47(2): 182-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4048365&dopt=Abstract

- **Biofeedback regulation of ultrafiltration and dialysate conductivity for the prevention of hypotension during hemodialysis.**
  Author(s): Begin V, Deziel C, Madore F.
  Source: Asaio Journal (American Society for Artificial Internal Organs : 1992). 2002 May-June; 48(3): 312-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12059007&dopt=Abstract

- **Bisxanthones from Hypericum japonicum: inhibitors of PAF-induced hypotension.**
  Author(s): Ishiguro K, Nagata S, Oku H, Yamaki M.
  Source: Planta Medica. 2002 March; 68(3): 258-61.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11914965&dopt=Abstract

- **Blood volume controlled hemodialysis in hypotension-prone patients: a randomized, multicenter controlled trial.**
  Author(s): Santoro A, Mancini E, Basile C, Amoroso L, Di Giulio S, Usberti M, Colasanti G, Verzetti G, Rocco A, Imbasciati E, Panzetta G, Bolzani R, Grandi F, Polacchini M.
  Source: Kidney International. 2002 September; 62(3): 1034-45.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12164888&dopt=Abstract

- **Camphor-Crataegus berry extract combination dose-dependently reduces tilt induced fall in blood pressure in orthostatic hypotension.**
  Author(s): Belz GG, Butzer R, Gaus W, Loew D.
  Source: Phytomedicine : International Journal of Phytotherapy and Phytopharmacology. 2002 October; 9(7): 581-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12487321&dopt=Abstract

- **Contingent negative variation and cognitive performance in hypotension.**
  Author(s): Costa M, Stegagno L, Schandry R, Bitti PE.
  Source: Psychophysiology. 1998 November; 35(6): 737-44.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9844435&dopt=Abstract

- **Dose-response related efficacy in orthostatic hypotension of a fixed combination of D-camphor and an extract from fresh crataegus berries and the contribution of the single components.**
  Author(s): Belz GG, Loew D.
  Source: Phytomedicine : International Journal of Phytotherapy and Phytopharmacology. 2003; 10 Suppl 4: 61-7. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12807346&dopt=Abstract

- **Exercise supplementation to dipyridamole prevents hypotension, improves electrocardiogram sensitivity, and increases heart-to-liver activity ratio on Tc-99m sestamibi imaging.**
  Author(s): Vitola JV, Brambatti JC, Caligaris F, Lesse CR, Nogueira PR, Joaquim AI, Loyo M, Salis FV, Paiva EV, Chalela WA, Meneghetti JC.
  Source: Journal of Nuclear Cardiology : Official Publication of the American Society of Nuclear Cardiology. 2001 November-December; 8(6): 652-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11725261&dopt=Abstract

- **Hypotension and cutaneous reactions associated with intravenous administration of etoposide in the dog.**
  Author(s): Ogilvie GK, Cockburn CA, Tranquilli WJ, Reschke RW, Weigel RM.
  Source: Am J Vet Res. 1988 August; 49(8): 1367-70. Erratum In: Am J Vet Res 1988 October; 49(10): 1765.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2972235&dopt=Abstract

- **Hypotension following stimulation of acupuncture point Fengchi (G B 20)**
  Author(s): Rajanna P.
  Source: J R Coll Gen Pract. 1983 September; 33(254): 606-7. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6631808&dopt=Abstract

- **Influence of acetonylgeraniin, a hydrolyzable tannin from Euphoria longana, on orthostatic hypotension in a rat model.**
  Author(s): Hsu FL, Lu FH, Cheng JT.
  Source: Planta Medica. 1994 August; 60(4): 297-300.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7938260&dopt=Abstract

- **Licorice ameliorates postural hypotension caused by diabetic autonomic neuropathy.**
  Author(s): Basso A, Dalla Paola L, Erle G, Boscaro M, Armanini D.
  Source: Diabetes Care. 1994 November; 17(11): 1356.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7821181&dopt=Abstract

- **Long lasting, grade IV, orthostatic hypotension after a single cycle combination chemotherapy with paclitaxel and cisplatin.**
  Author(s): Vassilomanolakis M, Tsoussis S, Efremidis A.

Source: European Journal of Cancer (Oxford, England : 1990). 1998 July; 34(8): 1295.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9849495&dopt=Abstract

- **Low blood pressure in vegetarians: effects of specific foods and nutrients.**
Author(s): Sacks FM, Kass EH.
Source: The American Journal of Clinical Nutrition. 1988 September; 48(3 Suppl): 795-800.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3414588&dopt=Abstract

- **Low blood pressure in vegetarians: the possible role of potassium.**
Author(s): Ophir O, Peer G, Gilad J, Blum M, Aviram A.
Source: The American Journal of Clinical Nutrition. 1983 May; 37(5): 755-62.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6846214&dopt=Abstract

- **Magnesium toxicity as a cause of hypotension and hypoventilation. Occurrence in patients with normal renal function.**
Author(s): Fassler CA, Rodriguez RM, Badesch DB, Stone WJ, Marini JJ.
Source: Archives of Internal Medicine. 1985 September; 145(9): 1604-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4026491&dopt=Abstract

- **Marked systemic hypotension depresses coronary thrombolysis induced by intracoronary administration of recombinant tissue-type plasminogen activator.**
Author(s): Prewitt RM, Gu S, Garber PJ, Ducas J.
Source: Journal of the American College of Cardiology. 1992 December; 20(7): 1626-33.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1452937&dopt=Abstract

- **Microbial infection or trauma at cardiovascular representation area of medulla oblongata as some of the possible causes of hypertension or hypotension.**
Author(s): Omura Y.
Source: Acupuncture & Electro-Therapeutics Research. 1988; 13(2-3): 131-45.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2904210&dopt=Abstract

- **Microvascular vasodilatory responses to electric acupuncture in rat brain under acute hemorrhagic hypotension.**
Author(s): Niimi H, Yamaguchi S, Hu QH, Zhuang FY.
Source: Clinical Hemorheology and Microcirculation. 2000; 23(2-4): 191-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11321440&dopt=Abstract

- **Modifying the dialysis prescription to reduce intradialytic hypotension.**
Author(s): Sherman RA.

Source: American Journal of Kidney Diseases : the Official Journal of the National Kidney Foundation. 2001 October; 38(4 Suppl 4): S18-25.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11602457&dopt=Abstract

- **Paeoniflorin reverses guanethidine-induced hypotension via activation of central adenosine A1 receptors in Wistar rats.**
  Author(s): Cheng JT, Wang CJ, Hsu FL.
  Source: Clinical and Experimental Pharmacology & Physiology. 1999 October; 26(10): 815-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10549407&dopt=Abstract

- **Paradoxical hypotension during dobutamine infusion for myocardial perfusion scintigraphy.**
  Author(s): Ergun EL, Caner B, Atalar E, Karanfil A, Tokgozoglu L.
  Source: Nuklearmedizin. 1998; 37(8): 268-71.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9868708&dopt=Abstract

- **Phase I study of paclitaxel by three-hour infusion: hypotension just after infusion is one of the major dose-limiting toxicities.**
  Author(s): Tamura T, Sasaki Y, Nishiwaki Y, Saijo N.
  Source: Japanese Journal of Cancer Research : Gann. 1995 December; 86(12): 1203-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8636011&dopt=Abstract

- **Potassium supplementation in the treatment of idiopathic postural hypotension.**
  Author(s): Heseltine D, Thomas T, Wilkinson R, James OF, Potter JF.
  Source: Age and Ageing. 1990 November; 19(6): 409-14.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2285009&dopt=Abstract

- **Prevention of haemodialysis-induced hypotension by biofeedback control of ultrafiltration and infusion.**
  Author(s): Schmidt R, Roeher O, Hickstein H, Korth S.
  Source: Nephrology, Dialysis, Transplantation : Official Publication of the European Dialysis and Transplant Association - European Renal Association. 2001 March; 16(3): 595-603.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11239038&dopt=Abstract

- **Primary dysfunction of the afferent limb of the arterial baroreceptor reflex system in a patient with severe supine hypertension and orthostatic hypotension.**
  Author(s): Kochar MS, Ebert TJ, Kotrly KJ.
  Source: Journal of the American College of Cardiology. 1984 October; 4(4): 802-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6481019&dopt=Abstract

- **Recurrent paroxysmal hypotension and bradycardia in a patient with pharynx tumor metastasis to the cervical lymph nodes.**
  Author(s): Murata M, Ojima K, Morikawa M, Aizawa Y, Arai Y, Shibata A.
  Source: Japanese Circulation Journal. 1986 March; 50(3): 278-82.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3735659&dopt=Abstract

- **Regulation of cerebral blood flow in patients with autonomic dysfunction and severe postural hypotension.**
  Author(s): Hesse B, Mehlsen J, Boesen F, Schmidt JF, Andersen EB, Waldemar G, Andersen AR, Paulson OB, Vorstrup S.
  Source: Clinical Physiology and Functional Imaging. 2002 July; 22(4): 241-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12402445&dopt=Abstract

- **Reproducibility of orthostatic hypotension in symptomatic elderly.**
  Author(s): Ward C, Kenny RA.
  Source: The American Journal of Medicine. 1996 April; 100(4): 418-22.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8610728&dopt=Abstract

- **Role of physical countermaneuvers in the management of orthostatic hypotension: efficacy and biofeedback augmentation.**
  Author(s): Bouvette CM, McPhee BR, Opfer-Gehrking TL, Low PA.
  Source: Mayo Clinic Proceedings. 1996 September; 71(9): 847-53.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8790259&dopt=Abstract

- **Ruscus aculeatus (butcher's broom) as a potential treatment for orthostatic hypotension, with a case report.**
  Author(s): Redman DA.
  Source: Journal of Alternative and Complementary Medicine (New York, N.Y.). 2000 December; 6(6): 539-49.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11152059&dopt=Abstract

- **Sympathoinhibition and hypotension in carotid sinus hypersensitivity.**
  Author(s): Smith ML, Ellenbogen KA, Eckberg DL.
  Source: Clinical Autonomic Research : Official Journal of the Clinical Autonomic Research Society. 1992 December; 2(6): 389-92.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1290922&dopt=Abstract

- **The relationship between neurally mediated hypotension and the chronic fatigue syndrome.**
  Author(s): Bou-Holaigah I, Rowe PC, Kan J, Calkins H.

Source: Jama : the Journal of the American Medical Association. 1995 September 27; 274(12): 961-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7674527&dopt=Abstract

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering CAM and related topics. The following is a representative sample:

- Alternative Medicine Foundation, Inc.: **http://www.herbmed.org/**
- AOL: **http://search.aol.com/cat.adp?id=169&layer=&from=subcats**
- Chinese Medicine: **http://www.newcenturynutrition.com/**
- drkoop.com®: **http://www.drkoop.com/InteractiveMedicine/IndexC.html**
- Family Village: **http://www.familyvillage.wisc.edu/med_altn.htm**
- Google: **http://directory.google.com/Top/Health/Alternative/**
- Healthnotes: **http://www.healthnotes.com/**
- MedWebPlus: **http://medwebplus.com/subject/Alternative_and_Complementary_Medicine**
- Open Directory Project: **http://dmoz.org/Health/Alternative/**
- HealthGate: **http://www.tnp.com/**
- WebMD®Health: **http://my.webmd.com/drugs_and_herbs**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,00.html**
- Yahoo.com: **http://dir.yahoo.com/Health/Alternative_Medicine/**

The following is a specific Web list relating to low blood pressure; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **General Overview**

  Abdominal Wall Inflammation
  Source: Integrative Medicine Communications; www.drkoop.com

  Amyloidosis
  Source: Integrative Medicine Communications; www.drkoop.com

  Anorexia Nervosa
  Source: Integrative Medicine Communications; www.drkoop.com

  Chronic Fatigue Syndrome
  Source: Healthnotes, Inc.; www.healthnotes.com

Congestive Heart Failure
Source: Integrative Medicine Communications; www.drkoop.com

Edema
Source: Integrative Medicine Communications; www.drkoop.com

Fainting
Source: Integrative Medicine Communications; www.drkoop.com

Food Poisoning
Source: Integrative Medicine Communications; www.drkoop.com

High Blood Pressure
Source: Integrative Medicine Communications; www.drkoop.com

High Cholesterol
Source: Integrative Medicine Communications; www.drkoop.com

High Cholesterol
Source: Prima Communications, Inc.www.personalhealthzone.com

Hypercholesterolemia
Source: Integrative Medicine Communications; www.drkoop.com

Hypertension
Source: Integrative Medicine Communications; www.drkoop.com

Hypothermia
Source: Integrative Medicine Communications; www.drkoop.com

Menkes' Disease
Source: Healthnotes, Inc.; www.healthnotes.com

Pancreatitis
Source: Integrative Medicine Communications; www.drkoop.com

Parkinson's Disease
Source: Integrative Medicine Communications; www.drkoop.com

Peritonitis
Source: Integrative Medicine Communications; www.drkoop.com

Serum Sickness
Source: Integrative Medicine Communications; www.drkoop.com

Shock
Source: Integrative Medicine Communications; www.drkoop.com

Syncope
Source: Integrative Medicine Communications; www.drkoop.com

TIAs
Source: Integrative Medicine Communications; www.drkoop.com

Transient Ischemic Attacks
Source: Integrative Medicine Communications; www.drkoop.com

Water Retention
Source: Integrative Medicine Communications; www.drkoop.com

- **Herbs and Supplements**

Acanthopanax Senticosus
Source: Integrative Medicine Communications; www.drkoop.com

American Ginseng
Alternative names: Panax quinquefolium
Source: Integrative Medicine Communications; www.drkoop.com

Asian Ginseng
Alternative names: Panax ginseng
Source: Integrative Medicine Communications; www.drkoop.com

Black Cohosh
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10009,00.html

Cysteine
Source: Integrative Medicine Communications; www.drkoop.com

Eleuthero
Alternative names: Siberian Ginseng, Eleuthero; Acanthopanax/Eleutherococcus senticosus Rupr. & Maxim.
Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Eleuthero
Source: Integrative Medicine Communications; www.drkoop.com

Eleutherococcus Senticosus
Source: Integrative Medicine Communications; www.drkoop.com

Ephedra
Alternative names: Ephedra sinensis, Ma huang
Source: Integrative Medicine Communications; www.drkoop.com

Ephedra Sinensis
Source: Integrative Medicine Communications; www.drkoop.com

Eucalyptus
Alternative names: Eucalyptus globulus
Source: Healthnotes, Inc.; www.healthnotes.com

Forskolin
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10025,00.html

Glycyrrhiza1
Alternative names: Licorice; Glycyrrhiza glabra L.
Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Hawthorn
Source: Prima Communications, Inc.www.personalhealthzone.com

Hawthorn
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10035,00.html

Indian Tobacco
Source: Integrative Medicine Communications; www.drkoop.com

Lobelia
Alternative names: Lobelia inflata, Indian Tobacco
Source: Integrative Medicine Communications; www.drkoop.com

Lobelia Inflata
Source: Integrative Medicine Communications; www.drkoop.com

Ma Huang
Source: Integrative Medicine Communications; www.drkoop.com

Ma Huang
Source: The Canadian Internet Directory for Holistic Help, WellNet, Health and Wellness Network; www.wellnet.ca

Mistletoe
Alternative names: Viscum album
Source: Healthnotes, Inc.; www.healthnotes.com

Panax Ginseng
Source: Integrative Medicine Communications; www.drkoop.com

Panax Quinquefolium
Source: Integrative Medicine Communications; www.drkoop.com

Siberian Ginseng
Alternative names: Eleutherococcus senticosus, Acanthopanax senticosus, Eleuthero
Source: Integrative Medicine Communications; www.drkoop.com

Stevia
Alternative names: Sweetleaf; Stevia rebaudiana Bertoni
Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Verapamil
Source: Healthnotes, Inc.; www.healthnotes.com

Yohimbe
Source: Prima Communications, Inc.www.personalhealthzone.com

Yohimbe
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,830,00.html

General References

A good place to find general background information on CAM is the National Library of Medicine. It has prepared within the MEDLINEplus system an information topic page dedicated to complementary and alternative medicine. To access this page, go to the MEDLINEplus site at **http://www.nlm.nih.gov/medlineplus/alternativemedicine.html**. This Web site provides a general overview of various topics and can lead to a number of general sources.

CHAPTER 4. CLINICAL TRIALS AND LOW BLOOD PRESSURE

Overview

In this chapter, we will show you how to keep informed of the latest clinical trials concerning low blood pressure.

Recent Trials on Low Blood Pressure

The following is a list of recent trials dedicated to low blood pressure.[8] Further information on a trial is available at the Web site indicated.

- **A Phase IV Study in Subjects with Neurogenic Orthostatic Hypotension**

  Condition(s): Hypotension, Orthostatic

  Study Status: This study is currently recruiting patients.

  Sponsor(s): Shire Pharmaceutical Development

  Purpose - Excerpt: We are seeking male and female patients to voluntarily take part in a clinical research study. Patients must be aged 18 or older and diagnosed with symptomatic orthostatic **hypotension** (low blood pressure while in the upright position) due to Parkinson's disease, multiple system atrophy, pure autonomic failure or autonomic neuropathies (i.e. neurogenic orthostatic hypotension). Symptoms of **low blood pressure** include dizziness, lightheadedness, changes in vision and generalized weakness upon standing. The main effect of the drug being studied is to increase blood pressure in the upright position so symptoms will decrease. The purpose of this clinical study is to further assess the clinical effect of high dose midodrine hydrochloride (ProAmatine(r)), an approved treatment for orthostatic **hypotension.** During the course of the study, participants will receive either ProAmatine(r) or a placebo. Assessments will be made using questionnaires that measure symptom and activity levels. Blood pressure in the lying down, sitting and standing positions will be measured. Patients will also complete standing time assessments. They will be asked to remain standing without moving until they feel sufficiently lightheaded, or dizzy, or feel faint so that they would feel more comfortable sitting down.

  Phase(s): Phase IV

[8] These are listed at **www.ClinicalTrials.gov**.

Study Type: Interventional

Contact(s): see Web site below

Web Site: http://clinicaltrials.gov/ct/show/NCT00046163

- **A Study for Patients with Neurogenic Orthostatic Hypotension**

  Condition(s): Hypotension, Orthostatic

  Study Status: This study is currently recruiting patients.

  Sponsor(s): Shire Pharmaceutical Development

  Purpose - Excerpt: We are seeking male and female patients to voluntarily take part in a clinical research study. Patients must be aged 18 or older and diagnosed with symptomatic orthostatic **hypotension** (low blood pressure while in the upright position) due to Parkinson's disease, multiple system atrophy, pure autonomic failure or autonomic neuropathies (i.e. neurogenic orthostatic hypotension). Symptoms of **low blood pressure** include dizziness, lightheadedness, changes in vision and generalized weakness upon standing. The main effect of the drug being studied is to increase blood pressure in the upright position so symptoms will decrease. The purpose of this clinical study is to further assess the clinical benefit of midodrine hydrochloride (ProAmatine(r)), an approved treatment for orthostatic **hypotension.** During the course of the study, participants will receive either ProAmatine(r) or a placebo. Assessments will be made using questionnaires that measure symptom and activity levels. Blood pressure in the lying down and standing positions will be measured at each visit.

  Phase(s): Phase IV

  Study Type: Interventional

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00046475

- **Droxidopa in Treating Patients With Neurogenic Hypotension**

  Condition(s): Shy-Drager Syndrome; Orthostatic Hypotension

  Study Status: This study is currently recruiting patients.

  Sponsor(s): Mount Sinai Medical Center

  Purpose - Excerpt: RATIONALE: Neurogenic **hypotension** is a fall in blood pressure that occurs when one moves from a lying down to a standing position or after eating a meal. It causes one to feel dizzy, light headed, and weak. Neurogenic **hypotension** is caused by a problem in the part of the nervous system that controls such functions as heart rate and blood pressure. Droxidopa, a drug that may increase blood pressure, may be an effective treatment for neurogenic **hypotension.** PURPOSE: Clinical trial to study the effectiveness of droxidopa in treating patients who have neurogenic **hypotension.**

  Study Type: Interventional

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00004478

- **Evaluation of M40403 for the Prevention of Dose Limiting Toxicities of High Dose IL-2**

  Condition(s): IL-2 Induced Hypotension

Study Status: This study is suspended.

Sponsor(s): MetaPhore Pharmaceuticals

Purpose - Excerpt: The clinical use of IL-2 is currently limited by development of dose-dependent **hypotension** (systolic blood pressure (SBP) < 90 mm Hg). The overall outcome is constant across sites with 20-50% of the patients requiring ICU management because of unresponsive **hypotension** and hyporeactivity (loss of response to vasoconstrictors). Because of the dose-limiting side effects, the duration of IL-2 dosing is frequently curtailed. Thus, hemodynamic toxicities have limited the usefulness of IL-2 therapy. M40403 has prevented both the **hypotension** and hyporeactivity associated with IL-2 treatment in preclinical studies. This trial will study the safety and efficacy of M40403 in the prevention or reduction of **hypotension** in patients receiving IL-2 therapy.

Phase(s): Phase I; Phase II; MEDLINEplus consumer health information

Study Type: Interventional

Contact(s): see Web site below

Web Site: http://clinicaltrials.gov/ct/show/NCT00033956

- **Phase II Study of Midodrine for Neurogenic Orthostatic Hypotension**

  Condition(s): Orthostatic Hypotension

  Study Status: This study is completed.

  Sponsor(s): National Center for Research Resources (NCRR); Roberts Pharmaceutical

  Purpose - Excerpt: Objectives: I. Study further the safety and efficacy of the alpha-receptor agonist midodrine in patients with neurogenic orthostatic **hypotension.** II. Assess the quality of life in these patients with this treatment regimen.

  Phase(s): Phase II

  Study Type: Interventional

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00004268

Keeping Current on Clinical Trials

The U.S. National Institutes of Health, through the National Library of Medicine, has developed ClinicalTrials.gov to provide current information about clinical research across the broadest number of diseases and conditions.

The site was launched in February 2000 and currently contains approximately 5,700 clinical studies in over 59,000 locations worldwide, with most studies being conducted in the United States. ClinicalTrials.gov receives about 2 million hits per month and hosts approximately 5,400 visitors daily. To access this database, simply go to the Web site at **http://www.clinicaltrials.gov/** and search by "low blood pressure" (or synonyms).

While ClinicalTrials.gov is the most comprehensive listing of NIH-supported clinical trials available, not all trials are in the database. The database is updated regularly, so clinical trials are continually being added. The following is a list of specialty databases affiliated with the National Institutes of Health that offer additional information on trials:

- For clinical studies at the Warren Grant Magnuson Clinical Center located in Bethesda, Maryland, visit their Web site: **http://clinicalstudies.info.nih.gov/**
- For clinical studies conducted at the Bayview Campus in Baltimore, Maryland, visit their Web site: **http://www.jhbmc.jhu.edu/studies/index.html**
- For cancer trials, visit the National Cancer Institute: **http://cancertrials.nci.nih.gov/**
- For eye-related trials, visit and search the Web page of the National Eye Institute: **http://www.nei.nih.gov/neitrials/index.htm**
- For heart, lung and blood trials, visit the Web page of the National Heart, Lung and Blood Institute: **http://www.nhlbi.nih.gov/studies/index.htm**
- For trials on aging, visit and search the Web site of the National Institute on Aging: **http://www.grc.nia.nih.gov/studies/index.htm**
- For rare diseases, visit and search the Web site sponsored by the Office of Rare Diseases: **http://ord.aspensys.com/asp/resources/rsch_trials.asp**
- For alcoholism, visit the National Institute on Alcohol Abuse and Alcoholism: **http://www.niaaa.nih.gov/intramural/Web_dicbr_hp/particip.htm**
- For trials on infectious, immune, and allergic diseases, visit the site of the National Institute of Allergy and Infectious Diseases: **http://www.niaid.nih.gov/clintrials/**
- For trials on arthritis, musculoskeletal and skin diseases, visit newly revised site of the National Institute of Arthritis and Musculoskeletal and Skin Diseases of the National Institutes of Health: **http://www.niams.nih.gov/hi/studies/index.htm**
- For hearing-related trials, visit the National Institute on Deafness and Other Communication Disorders: **http://www.nidcd.nih.gov/health/clinical/index.htm**
- For trials on diseases of the digestive system and kidneys, and diabetes, visit the National Institute of Diabetes and Digestive and Kidney Diseases: **http://www.niddk.nih.gov/patient/patient.htm**
- For drug abuse trials, visit and search the Web site sponsored by the National Institute on Drug Abuse: **http://www.nida.nih.gov/CTN/Index.htm**
- For trials on mental disorders, visit and search the Web site of the National Institute of Mental Health: **http://www.nimh.nih.gov/studies/index.cfm**
- For trials on neurological disorders and stroke, visit and search the Web site sponsored by the National Institute of Neurological Disorders and Stroke of the NIH: **http://www.ninds.nih.gov/funding/funding_opportunities.htm#Clinical_Trials**

CHAPTER 5. PATENTS ON LOW BLOOD PRESSURE

Overview

Patents can be physical innovations (e.g. chemicals, pharmaceuticals, medical equipment) or processes (e.g. treatments or diagnostic procedures). The United States Patent and Trademark Office defines a patent as a grant of a property right to the inventor, issued by the Patent and Trademark Office.[9] Patents, therefore, are intellectual property. For the United States, the term of a new patent is 20 years from the date when the patent application was filed. If the inventor wishes to receive economic benefits, it is likely that the invention will become commercially available within 20 years of the initial filing. It is important to understand, therefore, that an inventor's patent does not indicate that a product or service is or will be commercially available. The patent implies only that the inventor has "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States. While this relates to U.S. patents, similar rules govern foreign patents.

In this chapter, we show you how to locate information on patents and their inventors. If you find a patent that is particularly interesting to you, contact the inventor or the assignee for further information. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical patents that use the generic term "low blood pressure" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on low blood pressure, we have not necessarily excluded non-medical patents in this bibliography.

Patents on Low Blood Pressure

By performing a patent search focusing on low blood pressure, you can obtain information such as the title of the invention, the names of the inventor(s), the assignee(s) or the company that owns or controls the patent, a short abstract that summarizes the patent, and a few excerpts from the description of the patent. The abstract of a patent tends to be more technical in nature, while the description is often written for the public. Full patent descriptions contain much more information than is presented here (e.g. claims, references, figures, diagrams, etc.). We will tell you how to obtain this information later in the chapter.

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[9] Adapted from the United States Patent and Trademark Office: **http://www.uspto.gov/web/offices/pac/doc/general/whatis.htm**.

The following is an example of the type of information that you can expect to obtain from a patent search on low blood pressure:

- **Anti-endotoxin, interleukin-1 receptor antagonist and anti-tumor necrosis factor antibody with arginine-free formulations for the treatment of hypotension**

  Inventor(s): Griffith; Owen W. (Milwaukee, WI), Gross; Steven S. (New York, NY), Kilbourn; Robert G. (Houston, TX)

  Assignee(s): Board of Regents, The University of Texas System (Austin, TX)

  Patent Number: 5,334,380

  Date filed: June 30, 1992

  Abstract: Methods and compositions for treating and inhibiting **hypotension** related to both endotoxin and cytokine-induced shock are provided. A therapeutic regimen useful in the present invention includes an arginine-free parenteral formulation administered with or followed by the administration of an anti-endotoxin antibody, an interleukin-1 or interleukin-2 receptor antagonist, an anti-tumor necrosis factor antibody or a combination thereof. Most preferably, the administration of an arginine-free parenteral formulation augments the anti-hypotensive effect of the various antibodies and antagonist described so as to provide an effective treatment for various forms of **hypotension.** The therapeutic regimens of the invention are proposed to provide for a decrease in nitric oxide synthase, and thereby an increase in blood pressure in vivo, particularly in animals with cytokine- and/or endotoxin-induced **hypotension.** The parenteral formulation of the therapeutic regimen and methods of the invention are arginine-free and provide a decrease in plasma arginine levels. Reduced plasma, serum, or tissue levels of arginine in the animal function to augment the hypertensive action of the various antibodies and antagonist to be administered concurrently or subsequent to the administration of the parenteral formulation. Limiting and/or eliminating substrate arginine for nitric oxide synthesis, coupled with limiting and/or eliminating induction of nitric oxide synthase activity with the antibodies and antagonists of the present invention, provides a regimen for treating and/or inhibiting **hypotension** attendant a variety of conditions and treatments, including chemotherapeutic agent therapy (IFN, TNF, IL-1, IL-2), septic shock, trauma, exposure to endotoxins or cytokines, or other conditions in which **hypotension** is attendant.

  Excerpt(s): The present invention relates to the field of methods and compositions for the treatment of **hypotension.** The invention also relates to the field of combination therapeutic regimens particularly those which include a regimen of a particularly tailored parenteral formulation. The present invention also relates to the field of anti-tumor necrosis factor antibodies, as well as anti-endotoxin antibodies and interleukin-1 receptor antagonists as part of a therapeutic regimen for the treatment of **hypotension,** septic shock and related conditions. In 1980, Furchgott and Zawadski (Nature 288:373-376) demonstrated that endothelial cells, which line blood vessels, can be stimulated to release a substance which relaxes vascular smooth muscle i.e., causes vasodilatation. Since the chemical nature of this substance was completely unknown, it was simply named endothelium-derived relaxing factor (EDRF). It is now widely accepted that many naturally-occurring substances which act as physiological vasodilators mediate all or part of their action by stimulating release of EDRF; these substances include, acetylcholine, histamine, bradykinin, leukotrienes, ADP, ATF, substance P, serotonin, thrombin and others. Although the extremely short lifetime of EDRF (several seconds) hampered efforts to chemically identify this molecule, in 1987 several laboratories suggested that EDRF may be nitric oxide (NO). Nitric oxide is known to spontaneously

decompose to nitrate and nitrite. A fundamental problem in accepting this NO hypothesis was that mammalian systems were not known to contain an enzymatic pathway which could synthesize NO; additionally, a likely precursor for NO biosynthesis was unknown. After observing that the arginine analog L-N.sup.G - methylarginine (L-NMA) could inhibit vascular EDRF/NO synthesis induced by acetylcholine and histamine, and that EDRF/NO synthesis could be restored by adding excess L-arginine, certain of the present inventors proposed that arginine is the physiological precursor of EDRF/NO biosynthesis (Sakuma et al. (1988), PNAS, 85:8664-8667). Certain of the present inventors later demonstrated that inhibition of EDRF/NO synthesis in the anesthetized guinea pig raises blood pressure (Aisaka et al. (1989), BBRC 160:881-886). This information further suggested to the inventors that EDRF/NO was an important physiological regulator of blood pressure.

Web site: http://www.delphion.com/details?pn=US05334380__

- **Apparatus and method for preventing hypotension in a dialysis patient**

  Inventor(s): Dubauskas; Charles J. (St. Petersburg, FL), Ebben; Jim (Hudson, WI), Keshaviah; Prakash R. (Plymouth, MN), Luhring; Dave (Savage, MN), Ruan; Jian (Maplewood, MN)

  Assignee(s): Baxter International Inc. (Deerfield, IL)

  Patent Number: 5,346,472

  Date filed: June 2, 1993

  Abstract: An automatic means and method for preventing and/or treating **hypotension** in hemodialysis patients. To this end, a system is provided wherein the patient or healthcare practitioner can cause the hemodialysis machine to automatically deliver sodium to the patient through the dialysate so as to increase blood and extracellular osmolarity, increase blood volume from vascular refilling, and raise blood pressure. This would thereby alleviate any clinical symptoms caused by **hypotension** during hemodialysis.

  Excerpt(s): The present invention relates generally to methods and apparatus for providing healthcare. More specifically, the present invention relates to methods and apparatus for treating patients via dialysis procedures. Dialysis provides a method for supplementing or replacing renal function in certain patients. Dialysis is the process of separating elements in a solution by diffusion across a semipermeable membrane (diffusive solute transport) down a concentration gradient. Principally, hemodialysis and peritoneal dialysis are utilized. Although dialysis provides in many cases life saving therapy, there are health issues that must be addressed in such patients. In a typical hemodialysis system, blood is removed from the patient and pumped to a dialysis machine including a membrane unit. The membrane unit dialyzes the blood which is then returned to the patient through tubing. Hemodialysis machines may be used at a health facility or in the patient's home. The machine attaches the patient through an extracorporeal circuit of blood tubing to a dialyzer having a pair of chambers separated by a thin semi-permeable membrane. The patient's blood is circulated through one of the chambers. The hemodialysis machine maintains a constant flow of a dialysate through the second chamber. Excess water from the blood is removed by ultrafiltration through the membrane and carried out by the dialysate to drain.

  Web site: http://www.delphion.com/details?pn=US05346472__

- **Argine antagonists for inhibition of systemic hypotension associated with nitric oxide production or endothelial derived relaxing factor**

  Inventor(s): Griffith; Owen W. (Milwaukee, WI), Gross; Steven S. (New York, NY), Kilbourn; Robert G. (Naperville, IL), Levi; Roberto (New York, NY)

  Assignee(s): Board of Regents, The University of Texas System (Austin, TX), Cornell Research Foundation, Inc. (Ithaca, NY)

  Patent Number: 5,770,623

  Date filed: November 22, 1995

  Abstract: A method for prophylaxis or treatment of an animal for systemic **hypotension** induced by internal nitrogen oxide production. The method involves administering a therapeutically effective amount of certain arginine derivatives to inhibit nitrogen oxide formation from arginine. Preferably N.sup.G -substituted arginine or an N.sup.G,N.sup.G -disubstituted arginine (having at least one hydrogen on a terminal guanidino amino group replaced by another atomic species) is administered to an animal possibly developing or already having such induced systemic **hypotension.** The arginine derivatives are preferably of the L configuration and include pharmaceutically acceptable addition salts. Prophylaxis or treatment of systemic **hypotension** in a patient which has been induced by chemotherapeutic treatment with biologic response modifiers such as tumor necrosis factor or interleukin-2 may be accomplished. Treatment of an animal for systemic **hypotension** induced by endotoxin, i.e., septic shock may also be accomplished by treatment with the arginine derivatives.

  Excerpt(s): Certain research relating to the development of this invention was supported by the United States Public Health Service grants which may give the United States government certain rights in the present invention. The present invention relates to the prophylaxis and alleviation of **hypotension** induced by nitrogen oxide production. In 1980, Furchgott and Zawadski (Nature 288: 373-376) demonstrated that endothelial cells, which line blood vessels, can be stimulated to release a substance which relaxes vascular smooth muscle i.e., causes vasodilatation. Since the chemical nature of this substance was completely unknown, it was simply named endothelium-derived relaxing factor (EDRF). It is now widely accepted that many naturally-occurring substances which act as physiological vasodilators mediate all or part of their action by stimulating release of EDRF; these substances include, acetylcholine, histamine, bradykinin, leukotrienes, ADP, ATF, substance P, serotonin, thrombin and others. Although the extremely short lifetime of EDRF (several seconds) hampered efforts to chemically identify this molecule, in 1987 several laboratories suggested that EDRF may be nitric oxide (NO), which spontaneously decomposes to nitrate and nitrite. A fundamental problem in accepting this NO hypothesis was that mammalian systems were not known to contain an enzymatic pathway which could synthesize NO; additionally, a likely precursor for NO biosynthesis was unknown. After observing that the arginine analog L-N.sub.G -methylarginine (L-NMA) could inhibit vascular EDRF/NO synthesis induced by acetylcholine and histamine, and that EDRF/NO synthesis could be restored by adding excess L-arginine, certain of the present inventors proposed that arginine is the physiological precursor of EDRF/NO biosynthesis (Sakuma et al., PNAS 85: 8664-8667, 1988). Additional evidence supporting this proposal was reported almost simultaneously. Certain of the present inventors later demonstrated that inhibition of EDRF/NO synthesis in the anesthetized guinea pig raises blood pressure, suggesting that EDRF/NO is an important physiological regulator of blood pressure (Aisaka et al., BBRC 16: 881-886, 1989). Notwithstanding the accumulated evidence supporting synthesis of NO, it is understood by those skilled in the art that other nitrogen oxides

may be present and may be active in reducing blood pressure. Within this specification, the acronym NO will be understood to represent nitric oxide and any additional vasoactive nitrogen oxides.

Web site: http://www.delphion.com/details?pn=US05770623__

- **Automated hemodialysis control based upon patient blood pressure and heart rate**

  Inventor(s): Levin; Nathan W. (Birmingham, MI), Zasuwa; Gerard A. (Redford, MI)

  Assignee(s): Henry Ford Hospital (Detroit, MI)

  Patent Number: 4,710,164

  Date filed: May 1, 1984

  Abstract: A method and system for continuously monitoring patient heart rate and blood pressure during hemodialysis and for automatically controlling fluid extraction rate and/or dialysate sodium concentration in the event that blood pressure and/or heart rate indicate onset or impending onset of a patient hypotensive episode. A decrease in patient blood pressure below preselected systolic and/or diastolic low alarm limits automatically initiates a second mode of therapeutic intervention wherein sodium concentration in the dialysate is increased for a predetermined time duration. Upon detection of such **low blood pressure** alarm, or upon detection of an increase in patient heart rate above a preselected alarm limit, the extraction rate of fluids from the patient through the ultrafiltration membrane is reduced in a first mode of therapeutic intervention by reducing such fluid extraction rate to a minimum level. Blood pressure and heart rate are thereafter monitored during this second mode of intervention to return ultrafiltration flow rate to its desired or goal level as blood pressure and heart rate indicate return of patient vital signs toward their initial levels.

  Excerpt(s): The present invention is directed to controlled hemodialysis techniques, and more particularly to automated control of dialysate composition and/or patient fluid extraction rate to prevent patient **hypotension.** Hypotension during hemodialysis is a common occurrence, and results in significant patient discomfort and inefficient use of dialysis time and monitoring personnel. The causes of dialysis-related **hypotension** are several in origin, and in general result from an inability to increase peripheral resistance and cardiac output during hemodialysis. It has been the practice in the art to monitor the blood pressure of a dialysis patient, either manually or automatically, at periodic intervals and to initiate therapeutic intervention by monitoring personnel in the event of a hypotensive episode. If an episode occurs between monitoring intervals or is not detected by manual or automated blood pressure monitoring, the dialysis monitoring personnel are usually not aware of a potential problem until the patient has a massive reaction and exhibits substantial distress. In any event, the several maneuvers heretofore employed to manage and correct a hypotensive episode, including injection of sodium solution into the patient's bloodstream and/or reducing fluid extraction rate, require manual intervention by dialysis personnel and continued actual observation and monitoring of the patient until the episode is corrected. A high ratio of dialysis personnel to patients is therefore required. It is therefore an object of the present invention to provide a fully automated method and apparatus for continuously monitoring patient vital signs during hemodialysis and automatically initiating therapeutic intervention upon occurrence of a hypotensive episode without requiring manual intervention by dialysis personnel.

  Web site: http://www.delphion.com/details?pn=US04710164__

- **Cardioversion energy reduction system**

  Inventor(s): Hill; Michael R. S. (Minneapolis, MN), Mongeon; Luc R. (Minneapolis, MN)

  Assignee(s): Medtronic, Inc. (Minneapolis, MN)

  Patent Number: 5,954,752

  Date filed: April 30, 1997

  Abstract: In an implantable pacemaker.backslash.cardioverter.backslash.defibrillator, a system for correlating the delivery of an atrial cardioversion therapy to an optimum blood pressure to effect delivery of the therapy when the volume of the atrium is minimized. In a first embodiment, the blood pressure in the atrium or ventricle is monitored and delivery is timed to a **low blood pressure** occurring as blood is emptying from the atrium. In a variation ventricular pacing may be provided to ensure that the ventricles are contracting forcefully and at a rate which optimizes atrial emptying. In a second embodiment, the delivery of the cardioversion therapy is also timed to an optimum point or phase of the respiratory cycle. The optimum point or phase of the respiration cycle depends in part on the chamber to be cardioverted and the location of the cardioversion electrodes with respect to the chamber.

  Excerpt(s): The present invention generally relates to implantable cardioverter-defibrillators and particularly to a system for correlating the delivery of a cardioversion therapy to an optimum blood pressure of the heart chamber to be cardioverted and optionally at an optimum phase of the respiratory cycle of the patient to effect delivery of the therapy when the impedance between the cardioversion electrodes is minimized. By way of definition, in the field of automatic implantable arrhythmia control devices, the term "cardioversion" or "cardioverter" refers to the process of and device for discharging relatively high energy electrical shocks in excess of 1.0 Joule into or across cardiac tissue to arrest or "cardiovert" a tachyarrhythmia of a cardiac chamber. Delivery of cardioversion shocks may or may not be synchronized with a cardiac depolarization or rhythm and may be applied to arrest a malignant atrial or ventricular tachycardia or fibrillation with a selectable or programmable pulse energy. The termination of high rate tachycardias with lesser energy electrical pulses or bursts has also been referred to as "cardioversion" The arrest of atrial or ventricular fibrillation by higher energy shocks is referred to as "defibrillation", and defibrillation have been characterized in the past as a form of cardioversion. Products have been described and sold as "implantable cardioverter/defibrillator" (ICD) systems for providing synchronized cardioversion shocks or and unsynchronized defibrillation shocks and as "pacemaker/cardioverter/defibrillator" (PCD) systems for providing additional staged therapies of anti-tachyarrhythmia pacing, synchronized cardioversion shocks and unsynchronized defibrillation shocks. In the following description and claims, it is to be assumed that the terms "cardioversion" and "defibrillation" and variants thereof are interchangeable, and that use of one term is inclusive of the other device or operation, unless specific distinctions are drawn between them in the context of the use. For convenience, the term "cardioversion" or "cardioversion/defibrillation" will be used unless a form of defibrillation therapy is specifically referred to. Tachyarrhythmias are episodes of high rate cardiac depolarizations, typically occurring in one chamber of the heart but which may be propagated from one chamber to the other, and are distinguished from sinus tachycardias that physiologically accompany exercise to provide adequate cardiac output. Tachyarrhythmias that are sufficiently high in rate and chaotic compromise cardiac output from the affected chamber(s), leading to loss of consciousness and death, in the case of ventricular fibrillation, or weakness and dizziness, in the case of atrial fibrillation or flutter and non-sinus atrial and ventricular

tachycardias. Atrial fibrillation and flutter are debilitating, due to the loss of atrial cardiac output contribution and interference with ventricular filling, but not immediately life threatening unless it leads to ventricular fibrillation. High rate atrial and ventricular tachycardias may exhibit a more organized rhythm but also may disable the patient and can lead to fibrillation if untreated.

Web site: http://www.delphion.com/details?pn=US05954752__

- **Inhibition of nitric oxide-mediated hypotension and septic shock with iron-containing hemoprotein**

  Inventor(s): Bonaventura; Joseph (Beaufort, NC), De Angelo; Joseph (Hamtramck, MI), Kilbourn; Robert G. (Houston, TX)

  Assignee(s): Board of Regents, The University of Texas System (Austin, TX), Duke University (Durham, NC), Strohtech, Inc. (Detroit, MI)

  Patent Number: 5,296,466

  Date filed: February 19, 1992

  Abstract: The invention is directed to a method for the prophylaxis or treatment of an animal for deleterious physiological effects such as systemic **hypotension** caused by nitric oxide production induced by a biological response modifier. Examples of such biological response modifiers include but are not limited to a cytokine and an endotoxin. The invention is also directed to a method for the treatment of septic shock.

  Excerpt(s): The invention is directed to a method for the prophylaxis or treatment of an animal for systemic **hypotension** induced by a biological response modifier. Examples of such biological response modifiers include but are not limited to a cytokine and an endotoxin. The invention is also directed to a method for the treatment of septic shock. Endothelial cells have been shown to produce a potent vasodilator known as Endothelium-Derived Relaxing Factor (EDRF). Many naturally occurring substances which act as physiological vasodilators mediate all or part of their action by stimulating the release of EDRF. Examples of such substances include acetylcholine, histamine, bradykinin, leukotrienes, ADP, and ATP. Recent studies have identified EDRF as nitric oxide, a short lived, unstable compound (Ignarro et al., 1987, Proc. Natl. Acad. Sci. U.S.A. 84:9265-9269 and Palmer et al., 1987, Nature 327:524-526). L-Arginine is the metabolic precursor of EDRF (Schmidt et al., 1988, Eur. J. Pharmacol. 154:213-216). N.sup.G -methyl-L-arginine is a competitive inhibitor of the biosynthetic pathway of EDRF (Palmer et al., 1988, Nature 333:664-666). Administration of N.sup.G -methyl-L-arginine to guinea pigs and rabbits has been shown to increase blood pressure (Aisaka et al., 1989, Biochem. Biophys. Res. Commun. 160:881-886). Nitric oxide (NO) appears to be synthesized from L-arginine by the enzyme, NO synthase; the coproduct is L-citrulline (Moncada et al., 1991, J Cardiovascular Pharmacol. 17 (Suppl. 3):S1-S9). NO is an endogenous stimulator for soluble guanylate cyclase.

  Web site: http://www.delphion.com/details?pn=US05296466__

- **LED display blood pressure meter**

  Inventor(s): Juang; Jing-Song (No. 236, Fu Teh 2 Rd., Hsichih, Taipei Hsien, TW)

  Assignee(s): none reported

  Patent Number: 5,464,017

  Date filed: June 29, 1994

  Abstract: An LED display blood pressure meter comprising a transmitter, a receiver, a sensor, an amplifying circuit, a transferring circuit, a microprocessor and three display circuits. When measuring human blood pressure, the blood pressure values are sensed and transferred into electronic analog signals by the sensor. The analog signals are amplified by the amplifying circuit and transferred into digital signals by the transferring circuit. The digital signal is then received and processed by the microprocessor which drives the display circuits to display the ascending/descending of the blood pressure values by means of LED array and show the high and **low blood pressure** values in digital pattern by means of LED displays. The high and **low blood pressure** values are latched by means of a transmitter and a receiver in remotely controlling manner so as to be stably displayed in a display panel.

  Excerpt(s): The present invention relates to an LED display blood pressure meter. A conventional blood pressure meter employs mercury column as the blood pressure measuring means in which the high and **low blood pressure** values are indicated by the scales aligned with the levels of the mercury column. The scales are read directly by the operator and an error will inevitably happen due to the deflection of the sight angle. Moreover, in case such blood pressure meter is damaged or discarded, the mercury is very apt to contaminate the environment. It is therefore a primary object of the present invention to provide an LED display blood pressure meter to eliminate the shortcomings existing in the conventional blood pressure meter. In the present blood pressure meter, a pressure sensor senses the blood pressure values and generates signals to be amplified by an amplifying circuit and transferred into digital signals by a transferring circuit. The digital signals are then received and processed by a microprocessor which sends signals to display circuits and drives the same to display the ascending/descending of the blood pressure values by means of LED array and show the high and **low blood pressure** values in digital pattern by means of LED displays. Because the present invention employs an electronic digitalized displaying manner, the high and **low blood pressure** values are latched by a transmitter and stably displayed in a display panel so that the reading error is greatly reduced and the problem of environmental pollution caused by the mercury is solved. However, the profile of the present invention is identical to that of the conventional blood pressure meter so that a user can apply the present blood pressure meter in a usual manner without inconvenience.

  Web site: http://www.delphion.com/details?pn=US05464017__

- **Method for treating systemic hypotension caused by sepsis or cytokine using arginase in combination with an.alpha.sub.1 adrenergic agonist**

  Inventor(s): Griffith; Owen W. (Milwaukee, WI), Gross; Steven S. (New York, NY), Levi; Roberto (New York, NY)

  Assignee(s): Cornell Research Foundation, Inc. (Ithaca, NY)

  Patent Number: 5,395,612

  Date filed: December 31, 1991

  Abstract: Reducing plasma levels of endogenous arginine by parenteral administration of arginine depleting agent limits nitric oxide formation and results in blood pressure increase. Preferably arginase is administered intravenously to raise blood pressure. The arginine depleting agent can be administered in conjunction with arginine antagonists to potentiate the effect of these. The arginine depleting agent can be used concurrently with.alpha.sub.1 adrenergic agonists in treating systemic **hypotension** caused by induced production of nitric oxide, to restore vascular contractile sensitivity to the effect of the.alpha.sub.1 adrenergic agonists. Duration of action and avoidance of antigenicity may be obtained by use in conjunction with a carrier or modifier.

  Excerpt(s): This invention is directed to a novel method of limiting biological nitric oxide formation. For several decades nitroglycerin has been administered to humans as a vasodilating agent in the treatment of cardiovascular disease. In about 1987, it was shown that nitroglycerin so administered is converted in the body to nitric oxide which is the pharmacologically active metabolite. Still more recently, nitric oxide has been shown to be formed in endothelial cells from arginine as a normal metabolite which is an important endothelium-derived relaxing factor (EDRF). It is now widely accepted that many naturally occurring substances which act as physiological vasodilators mediate all or part of their action by stimulating release of EDRF; these substances include acetylcholine, histamine, bradykinin, leukotrienes, ADP, ATF, substance P, serotonin, thrombin and others. EDRF is currently being intensively studied as participating in regulation of blood flow and vascular resistance. Incident to such study, a search has been carried out for compounds which inhibit nitric oxide production in the body. One compound discovered for use to obtain this effect is the arginine antagonist N.sup.G -methyl-L-arginine (Sakuma, I., et al, Proc. Natl. Acad. Sci. USA 85, 8664-8667 (1988)). Administration of N.sup.G -methyl-L-arginine to guinea pigs and rabbits has been shown to increase blood pressure (Aisaka, K., et al, Biochemical and Biophysic Research Communications, Vol. 160, No. 2, pp. 881-886, 4/28/89; Rees, D. D., et al, Proc. Natl. Acad. Sci. USA, Vol. 86, pp. 3375-3378, 5/89). Recently, it has been discovered that arginine antagonists inhibit systemic **hypotension** (Kilbourn, R. G. et al. U.S. Pat. No. 5,028,627) and that very effective arginine antagonists are physiologically active N.sup.G -amino-L-arginine (Griffith, O. W. U.S. Pat. No. 5,059,712) and physiologically active N.sup.G -(hydrazinoiminomethyl)lysine (Griffith, O. W., U.S. Pat. No. 5,132,453). It has also been discovered that the duration of the nitric oxide-mediated hypotensive response to acetylcholine is prolonged in animals infused with L-arginine (Aiaska, K., et al, Biochem. Biophys. Res. Commun. 163, 710-717, 1989). In addition to vascular endothelium, macrophages have also been shown to produce nitric oxide in the body which is a component of their cell killing and/or cytostatic function (Iyengar, R., et al, Proc. Natl. Acad. Sci, USA, Vol. 84, pp. 6369-6373, 9/87). It has also been shown that addition of arginase to macrophage cell culture medium prevents the activated macrophage cytoxic effector mechanism (Hibbs, J. B., et al, The Journal of Immunology, Vol. 138, No. 2, 550-565, 1/87).

Web site: http://www.delphion.com/details?pn=US05395612__

- **Methods of treating a mammal afflicted with hypotension with dialkylaminoalkyl ethers of 2-alkoxy-3,5-dihalobenzene and salts thereof**

  Inventor(s): Thominet; Michel Leon (Paris, FR)

  Assignee(s): Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France (Paris, FR)

  Patent Number: 3,995,038

  Date filed: April 26, 1976

  Abstract: Hypotension in mammals is effective relieved by the administration of dialkylaminoalkyl ethers of 2-alkoxy-3,5-dihalobenzenes. The compounds are relatively non-toxic in dosages required to alleviate such conditions.

  Excerpt(s): This invention relates to dialkylaminoalkyl ethers of 2-alkoxy-3,5-dihalobenzene, their non-toxic acid addition salts with a mineral or organic acid, their non-toxic quaternary ammonium salts and the process of producing these compounds. These compounds have significant pharmacological properties, particularly as spasmogenic agents and are adapted for the treatment of mammals with them. In which m is an integer from 0 through 2 and n is an integer from 0 through 2; R and R.sub.3 are hydrogen or lower alkyl of less than 6 carbon atoms; R.sub.1 and R.sub.2 are hydrogen, lower alkyl of less than 6 carbon atoms or form a five or six membered heterocyclic radical; and X and Y are halogens. Examples of lower alkyl having less than 6 carbon atoms are methyl, ethyl, propyl, isobutyl and amyl. Examples of five or six membered heterocyclic radicals are pyrrolidyl, piperidyl, morpholyl, piperazinyl, n-alkylpiperidyl and imidazolyl. The halogens X and Y may be the same or different; for example, they may be fluorine, chlorine or bromine.

  Web site: http://www.delphion.com/details?pn=US03995038__

- **N.sup.6 -(hydrazinoiminomethyl)lysine and method of inhibiting nitric oxide formation in body**

  Inventor(s): Griffith; Owen W. (New York, NY)

  Assignee(s): Cornell Research Foundation, Inc. (Ithaca, NY)

  Patent Number: 5,132,453

  Date filed: March 22, 1991

  Abstract: Physiologically active N.sup.6 -(hydrazinoiminomethyl)lysine or pharmaceutically acceptable acid addition salt thereof is administered in a nitric oxide sythesis inhibiting amount to a subject in need of such inhibition (e.g., a subject with **low blood pressure,** e.g., due to sepsis or to therapeutic administration of cytokines, or needing immunosuppressive effect) or is added to a medium containing isolated organs, intact cells, cell homogenates or tissue homogenates in an amount sufficient to inhibit nitric oxide formation to elucide or control the biosynthesis, metabolism or physiological role of nitric oxide. Compared to known nitric oxide synthesis inhibitors, N.sup.6 -(hydrazinoiminomethyl)lysine and its acid addition salts show a greater relative activity toward inducible isoform of nitric oxide synthase than toward constitutive isoform of nitric oxide synthase. N.sup.6 -(hydrazinoiminomethyl)lysine

and its pharmaceutically acceptable acid addition salts are substantially less toxic than are N.sup.G -amionoarginine and its pharmaceutically acceptable acid addition salts.

Excerpt(s): This invention is directed to novel inhibitors of biological nitric oxide formation. For several decades nitroglycerin has been administered to humans as a vasodilating agent in the treatment of cardiovascular disease. Recently, it has been shown that nitroglycerin so administered is converted in the body to nitric oxide which is the pharmacologically active metabolite. Still more recently, nitric oxide has been shown to be formed enzymatically from arginine as a normal metabolite which is an important component of endothelium-derived relaxing factors (EDRFs). EDRFs are currently being intensively studied as participating in regulation of blood flow and vascular resistance. In addition to vascular endothelium, macrophages have also been shown to produce nitric oxide in the body which is a component of their cell killing and/or cytostatic function (Iyengar, R., et al, Proc. Natl. Acad. Sci, USA, Vol. 84, pp. 6369-6373, September, 1987). More recently it has been established that the enzyme forming nitric oxide from arginine, i.e., nitric oxide synthase, occurs in two distinct isoforms, namely the constitutive isoform and the inducible isoform. The constitutive isoform is present in normal endothelial cells, neurons and some other tissues. Formation of nitric oxide by the constitutive isoform in endothelial cells is thought to play a role in normal blood pressure regulation. The inducible isoform of nitric oxide synthase has been isolated from activated macrophages and is induced by various cytokines or combinations of cytokines in endothelial cells and vascular smooth muscle cells. It is thought that in sepsis or cytokine-induced shock that the observed life-threatening **hypotension** is due mainly or wholly to overproduction of nitric oxide by the inducible isoform of nitric oxide synthase. The specific tissue(s) responsible are not yet known but are likely to include endothelium and vascular smooth muscle.

Web site: http://www.delphion.com/details?pn=US05132453__

- **Parenteral formulations for the inhibition of systemic hypotension associated with nitric oxide production or endothelial derived relaxing factor**

  Inventor(s): Griffith; Owen W. (New York, NY), Gross; Steven S. (New York, NY), Kilbourn; Robert G. (Houston, TX)

  Assignee(s): Board of Regents, University of Texas System (Austin, TX)

  Patent Number: 5,286,739

  Date filed: September 27, 1991

  Abstract: An anti-hypotensive formulation comprising an essentially arginine-free or low arginine (less than about 0.1%, most preferably, about 0.01%) containing mixture of amino acids is provided. The invention in particular embodiments of the anti-hypotensive formulation includes ornithine, citrulline or both. A method for prophylaxis and treatment of systemic **hypotension** in an animal is provided. Most particularly, a method for treating **hypotension** caused by nitric oxide synthesis through administering a low or essentially arginine-free parenteral formulation to an animal, so as to reduce or eliminate nitric oxide synthesis is described. A method for treating an animal in septic shock is also disclosed, comprising administering to the animal an anti-hypotensive formulation comprising a mixture of amino acids, which is essentially arginine free. Prophylaxis or treatment of systemic **hypotension,** particularly that **hypotension** incident to chemotherapeutic treatment with biologic response modifiers, such as tumor necrosis factor or interleukin-1 or -2, may be accomplished through the administration of the defined anti-hypotensive formulations until physiologically

acceptable systolic blood pressure levels are achieved in the animal. Treatment of an animal for septic shock induced by endotoxin may also be accomplished by administering to the animal the arginine-free formulations described.

Excerpt(s): The present invention relates to the field of prophylaxis and treatment of **hypotension.** Most particularly, the present invention proposes methods for the control and inhibition of **hypotension** or systemic shock through the administration of particularly defined formulations with limited nitric oxide-generating potential. The present invention also relates to specially tailored nutritional formulations for patients at risk of **hypotension** or systemic shock which include low concentrations of arginine or are arginine-free. Particular embodiments of the formulations also include ornithine or citrulline as urea cycle substrates. Anti-hypotensive TPN formulations for the general nutritional support of patients are also provided as within the scope of the present invention. The cardiovascular collapse and multiple metabolic derangements associated with septic shock are due largely to bacterial endotoxin (ET), which has been shown to elicit a septic shock-like condition when administered to animals.sup.2. ET is known to stimulate the synthesis and release of several cytokines and biological mediators having hypotensive activity; among the factors released, TNF, platelet activating factor (PAF), prostacyclin and complement-derived C5a anaphylatoxin have been proposed as contributors to the cardiovascular collapse of septic shock.sup.3-6. Although it has been shown that animals pretreated with anti-TNF antibodies.sup.7, PAF receptor antagonists.sup.8, and prostacyclin synthesis inhibitors.sup.9 are significantly protected against septic shock, the relative importance of these mediators in the pathology of septic shock is presently uncertain.

Web site: http://www.delphion.com/details?pn=US05286739__

- **Pharmaceutical composition and method for treating peripheral orthostatic hypotension**

Inventor(s): Hayashi; Akira (No. 290-1-210, Yamadaue, Suita-shi, Osaka-fu, JP), Suzuki; Tomokazu (No. 9-30-307, Okamoto 4-chome, Higashinada-ku, Kobe-shi, Hyogo-ken, JP), Yamamura; Yuichi (No. 1-9-22, Nigawatakadai, Takarazuka-shi, Hyogo-ken, JP)

Assignee(s): Hayashi; Akira (Suita, JP), Sumitomo Chemical Company, Limited (Osaka, JP), Suzuki; Tomokazu (Kobe, JP), Yamamura; Yuichi (Takarazuka, JP)

Patent Number: 4,330,558

Date filed: July 30, 1980

Abstract: A method for treating peripheral orthostatic **hypotension** which comprises administering DL- or L-threo-3,4-dihydroxyphenylserine or a pharmaceutically acceptable acid addition salt thereof to a subject suffering from the disease. The composition may be administered either orally or parenterally.

Excerpt(s): The present invention relates to a pharmaceutical composition for treating peripheral orthostatic **hypotension,** which comprises as an active ingredient DL- or L-threo-3,4-dihydroxyphenylserine or a pharmaceutically acceptable acid addition salt thereof and a method for treating peripheral orthostatic **hypotension** with the active compound. There is so far no single drug that has proved effective in the treatment of orthostatic **hypotension.** Recently, it was reported that tyramine combined with a monoamine oxidase inhibitor is effective in the treatment of the "central" type of orthostatic **hypotension.** However, no reliable and effective drug for the treatment of the "peripheral" type of orthostatic **hypotension** in which the deficit appears to be at the

sympathetic nerves has yet been found. While studying the pathophysiology of familial amyloid poly-neuropathy (FAP) as a model of "dysautonomia syndrome", the present inventors have found that DL- or L-threo-3,4-dihydroxyphenylserine (threo-DOPS) is effective on orthostatic **hypotension,** inducing substantial and sustained elevation of blood pressure. Application of DL-threo-DOPS to various kinds of orthostatic **hypotension** proved that threo-DOPS is a novel drug for treating "peripheral" type of orthostatic **hypotension.**

Web site: http://www.delphion.com/details?pn=US04330558__

- **Pharmaceutical compositions for treatment of depression and low blood pressure**

  Inventor(s): Al-Damluji; Saad (London, GB2)

  Assignee(s): National Research Development Corporation (London, GB2)

  Patent Number: 5,240,930

  Date filed: February 22, 1991

  Abstract: A pharmaceutical composition which comprises a mixture of an alpha-2 adrenoceptor antagonist, preferably idazoxan, or a pharmaceutically acceptable salt thereof, and either a catecholamine precursor or an inhibitor of aromatic L-amino acid decarboxylase, preferably carbidopa. The compositions can be used for treatment of endogenous depression or **low blood pressure.**

  Excerpt(s): This invention relates to pharmaceutical compositions. Adrenaline and noradrenaline are substances that are released from nerve endings in the brain and in the periphery, and from the adrenal glands. They act as chemical messengers or `neurotransmitters`. Adrenaline, noradrenaline and a related substance, dopamine, belong to a class of chemicals known as the catecholamines. They are synthesised in the body from the amino acid tyrosine. Tyrosine is a natural dietary amino acid, but the body can also synthesise tyrosine from the amino acid phenylalanine. Tyrosine is converted into dihydroxyphenylalanine, which is in turn converted to dopamine, noradrenaline, and finally to adrenaline. Adrenergic receptors (usually known as adrenoceptors) are the sites of action of adrenaline and noradrenaline. They mediate physiological or pharmacological effects upon stimulation by an appropriate chemical, be it an endogenous substance or a synthetic drug with similar activity (agonist drug). By using a variety of pharmacological techniques, these receptors have been classified into alpha and beta adrenoceptors. Alpha adrenoceptors have in turn been subdivided into alpha-1 and alpha-2 adrenoceptor subtypes. Alpha-2 adrenoceptors are located in the membranes both of the target cells for adrenaline and noradrenaline (known as post synaptic alpha-2 adrenoceptors), and in the noradrenergic neurones themselves (known as presynaptic alpha-2 adrenoceptors). The presynaptic alpha-2 adrenoceptors inhibit the release of noradrenaline from its nerve terminals and act as a `negative feedback` mechanism following the release of noradrenaline from its nerve terminals. Thus, stimulation of alpha-2 adrenoceptors by agonists, including the endogenous neurotransmitters adrenaline and noradrenaline, reduces the amount of neurotransmitter released from the neuron. Conversely, administration of an alpha-2 adrenoceptor antagonist drug will increase the amount of neurotransmitter released from the neuron, by blocking the presynaptic alpha-2 adrenoceptors. Alpha-2 adrenoceptor antagonists are currently being investigated for a possible therapeutic effect in illnesses that are believed to be associated with reduced noradrenaline activity, such as endogenous depression. It has also been proposed that alpha-2 adrenoceptor

antagonists may be therapeutically useful in the treatment of **low blood pressure** states, by increasing the output of noradrenaline, which increases the blood pressure.

Web site: http://www.delphion.com/details?pn=US05240930__

- **Radio frequency treatment of tumors while inducing hypotension**

  Inventor(s): LeVeen; Harry H. (800 Poly Pl., Brooklyn, NY 11209)

  Assignee(s): none reported

  Patent Number: 4,119,102

  Date filed: November 11, 1976

  Abstract: The method of treating tumors by radio frequency heating at the location of the tumor to cause necrosis of the tumor tissue in which **hypotension** is induced during the treatment.

  Excerpt(s): This invention relates to the treatment of tumors in animal hosts, such as human beings, and in particular provides a technique for destroying the tumor without injury to adjacent normal tissues. The tumors can be either benign or malignant and include carcinomas, sarcomas, cysts and avascular lesions. It is an important object of this invention to provide a method applicable to the treatment of tumors under a wide variety of conditions which can be utilized with a minimum, and preferably an absence, of surgery. It has been noted that tumors can be affected by hyperthermia (Brit. of Cancer No. 25:771, 1971; Cancer Research No. 32:1916, 1972). This observation was coupled with the statement that the tumors were heat sensitive. Experiments with external surface heating do not produce deep heating and in some cases, using hyperthermia, the whole animal was heated as much as the tumor. Others have felt that a slight raise in temperatures produced by metabolic changes in the cancer interfered with cell growth (Europ. J. Cancer 9:103, 1973). Others have heated tumors for a few degrees by diathermy to observe the effect on the tumor which was inhibitory but not obstructive (Zelt. fur Naturforschung 8, 25:359, 1971). There is still considerable disagreement and conflicting evidence of the role heat may play in the treatment of cancer (The Lancet, May 3, 1975; 1027).

  Web site: http://www.delphion.com/details?pn=US04119102__

- **Removable left ventricular assist device with an aortic support apparatus**

  Inventor(s): Bian; Xiaoming (Fort Worth, TX), Downey; H. Fred (Fort Worth, TX)

  Assignee(s): My-Tech, Inc. (Tampa, FL)

  Patent Number: 6,228,018

  Date filed: February 5, 1999

  Abstract: An apparatus and method of temporarily replacing the function of the left ventricle in a patient whose heart is severely injured and is unable to maintain a systemic arterial pressure adequate to support the inside walls of patient's aorta, the method comprising a removable pressurizable support means having an external profile which is expandable to fit firmly against the inside wall of the aorta of a patient, wherein the external profile of the pressurizable support means presents a central opening that allows blood to flow through the aorta. The pressurizable support means can both support and expand the aorta under **low blood pressure** to assist the drawing

of blood from the left ventricle. The central opening also allows for the placement of a blood flow control means. The blood flow control means can comprise a pumping balloon and a proximal blocking balloon, the two members pressurized and depressurized in opposition within the aorta of a patient to simulate systole and diastole of a healthy heart. The pumping balloon has a pressurized pumping position that is engaged while the proximal blocking balloon is in a depressurized deflated position.

Excerpt(s): The present invention relates in general to a left ventricular assist device, and in particular to an apparatus and method for supporting the blood circulation when the heart is severely injured and is unable to maintain a systemic arterial pressure adequate to support the inside walls of patient's aorta. Still more particularly, the present invention relates to an apparatus and method for supporting and expanding the walls of the aorta from collapse during operation of the device, which might otherwise occur due to extremely **low blood pressure** and for providing diastole/systole-like cardiac function in a patient with a severely diseased or injured heart. In the United States alone, 60,340,000 people have cardiovascular disease. Of these, over 2,000,000 have congestive heart failure, with more than 500,000 new cases diagnosed each year. In 1995, only 2,359 patients received heart transplants, the most permanent of treatments to date, while 770 patients who qualified for heart transplant died waiting. About 450,000 patients undergo open-heart surgery each year, and 2% of these cases require mechanical cardiac support after surgery at a cost of about $400,000 per survivor. There are many different causes of heart failure, the most common of which are (1) acute myocardial infarction; (2) cardiomyopathy; (3) cardiac valvular dysfunction; (4) extensive cardiac surgery; and (5) uncontrolled cardiac arrhythmias. Heart failure, especially resulting from disease or damage to the left ventricle of the heart, can result in many problems.

Web site: http://www.delphion.com/details?pn=US06228018__

- **System and method for noninvasive hematocrit monitoring**

  Inventor(s): Harris; David H. (Ogden, UT), Steuer; Robert R. (Pleasant View, UT)

  Assignee(s): Noninvasive Medical Technology Corporation (Ogden, UT)

  Patent Number: 5,372,136

  Date filed: February 1, 1993

  Abstract: A system for determining the hematocrit transcutaneously and noninvasively. Disclosed are a finger clip assembly and an earlobe clip assembly, each including at least a pair of emitters and a photodiode in appropriate alignment to enable operation in either a transmissive mode or a reflectance mode. At least two, and preferably three, predetermined wavelengths of light are passed onto or through body tissues such as the finger, earlobe, or scalp, etc. and the extinction of each wavelength is detected. Mathematical manipulation of the detected values compensates for the effects of body tissue and fluid and determines the hematocrit value. If a fourth wavelength of light is used which is extinguished substantially differently by oxyhemoglobin and reduced hemoglobin and which is not substantially extinguished by plasma, then the blood oxygen saturation value, independent of hematocrit, may be determined.It is also disclosed how to detect and analyze multiple wavelengths using a logarithmic DC analysis technique. Then a pulse wave is not required so, this method may be utilized in states of **low blood pressure** or low blood flow.

Excerpt(s): This invention relates to systems and methods for noninvasively measuring one or more biologic constituent values. More particularly, the present invention relates to noninvasive spectrophotometric systems and methods for quantitatively and continuously monitoring the hematocrit and other blood parameters of a subject. Modern medical practice utilizes a number of procedures and indicators to assess a patient's condition. One of these indicators is the patient's hematocrit. Hematocrit (often abbreviated as Hct) is the volume, expressed as a percentage, of the patient's blood which is occupied by red corpuscles (commonly referred to as red blood cells). Human blood consists principally of liquid plasma (which is comprised of over 90% water with more than 100 other constituents such as proteins, lipids, salts, etc.) and three different corpuscles. The three corpuscles found in blood are red corpuscles, white corpuscles, and platelets.

Web site: http://www.delphion.com/details?pn=US05372136__

- **Use of cardiotonic drugs and inhibitors of nitric oxide synthesis to alleviate pathologic hypotension**

  Inventor(s): Griffith; Owen W. (Milwaukee, WI), Gross; Steven S. (New York, NY), Kilbourn; Robert G. (Houston, TX)

  Assignee(s): Board of Regents, the University of Texas System (Austin, TX), Cornell Research Foundation, Inc. (Ithaca, NY)

  Patent Number: 5,312,835

  Date filed: May 29, 1992

  Abstract: The present invention involves a method for prophylaxis or treatment of an animal for systemic **hypotension** induced by endotoxin and/or a biological response modifier such as the cytokines, IFN, TNF, IL-1 or IL-2 and the like. Said method involves administering, preferably intravascularly, a therapeutically effective amount of dobutamine and an inhibitor of nitric oxide formation from arginine. Although preferable administration is intravascular, it is contemplated that other parenteral administration routes such as intraperitoneal, intramuscular or subdermal injection, for example, may prove useful. Enteral or topical administration of arginine analogs may also prove beneficial under certain clinical conditions.

  Excerpt(s): The present invention relates to the alleviation of **hypotension** induced by nitrogen oxide production. Research relating to the present invention was supported by government research grants which gives the United States government rights in the present invention. In 1980, Furchgott and Zawadski (Nature 288:373-376 1980) demonstrated that endothelial cells, which line blood vessels, can be stimulated to release a substance which relaxes vascular smooth muscle i.e., causes vasodilatation. Since the chemical nature of this substance was completely unknown, it was simply named endothelium-derived relaxing factor (EDRF). It is now widely accepted that many naturally-occurring substances which act as physiological vasodilators mediate all or part of their action by stimulating release of EDRF; these substances include acetylcholine, histamine, bradykinin, leukotrienes, ADP, ATF, substance P, serotonin, thrombin and others. Although the extremely short lifetime of EDRF (several seconds) hampered efforts to chemically identify this molecule, in 1987 several laboratories suggested that EDRF may be nitric oxide (NO.), which spontaneously decomposes to nitrate and nitrite. A fundamental problem in accepting this No. hypothesis was that mammalian systems were not known to contain an enzymatic pathway which could synthesize NO.; additionally, a likely precursor for NO. biosynthesis was unknown.

After observing that the arginine analog N.sup.G -methyl-L-arginine (L-NMA) could inhibit vascular EDRF/NO. synthesis induced by acetylcholine and histamine, and that EDRF/NO. synthesis could be restored by adding excess L-arginine, it was proposed that arginine is the physiological precursor of EDRF/NO. biosynthesis (Sakuma et al., PNAS 85:8664-8667, 1988). Additional evidence supporting this proposal was reported almost simultaneously. It was also later demonstrated that inhibition of EDRF/NO. synthesis in the anesthetized guinea pig raises blood pressure, suggesting that EDRF/NO. is an important physiological regulator of blood pressure (Aisaka et al., BBRC 160:881-886, 1989). Notwithstanding the accumulated evidence supporting synthesis of NO., it is understood by those skilled in the art that other nitrogen oxides may be present and may be active in reducing blood pressure. Within this specification, the acronym NO. will be understood to represent nitric oxide and any additional vasoactive nitrogen oxides. It was demonstrated that macrophage cells become "activated" by 12-36 hour treatment with gamma-interferon, bacterial endotoxin and various cytokines. This "activation" is associated with initiation of tumor cell killing and generation of nitrite and nitrate from L-arginine. It was also observed that activated macrophages actually make NO. from L-arginine (just like endothelial cells) and that this NO. subsequently reacts with oxygen to form more oxidized nitrogen metabolites which appear to be physiologically inert (Stuehr et al., J. Exp. Med. 169:1011-1020, 1989). The enzyme responsible for NO. synthesis (nitric oxide synthase) has been partially characterized by some of the present inventors (Stuehr et al. BBRC 161:420-426, 1989) and acts to oxidize the terminal amino group of arginine, resulting in production of NO. and citrulline. It is now believed that macrophage-derived NO. is an important tumoricidal and bactericidal agent. Since bacterial endotoxin, gamma-interferon and other cytokines can trigger NO. generation by macrophage cells it appeared that: 1) endothelial cell NO. generation may be stimulated by similar stimuli and 2) septic shock (i.e., systemic vasodilatation induced by bacterial endotoxin) may result from massive activation of NO. biosynthesis. Speculation that the latter hypothesis was correct was fueled by a prior report that urinary nitrate levels are grossly elevated by treatment of rats with bacterial endotoxin (Wagner et al., PNAS 80:4518-4521, 1983).

Web site: http://www.delphion.com/details?pn=US05312835__

- **Use of hemoglobin in the treatment of hypotension**

  Inventor(s): Przybelski; Robert J. (Antioch, IL)

  Assignee(s): Baxter International, Inc. (Deerfield, IL)

  Patent Number: 6,117,838

  Date filed: June 2, 1998

  Abstract: A method of treating a mammal suffering from **hypotension** by administering intermolecularly- or intramolecularly-crosslinked stroma-free hemoglobin to the mammal.

  Excerpt(s): The present invention relates to perfusion and specifically to the therapeutic use of hemoglobin in low doses to increase perfusion. Perfusion is supplying an organ or tissue with oxygen and nutrients via blood or a suitable fluid. Perfusion is essentially the flow of fluid to tissues and organs through arteries and capillaries. Flow may be expressed as the ratio of pressure to resistance. If adequate oxygen and nutrients are not reaching tissues and organs, therapies to improve perfusion may be employed. Current management of **hypotension,** and its concurrent reduction in perfusion of tissues and organs, consists of the administration of (i) vasopressors, (ii) positive inotropic agents,

and/or (iii) vascular volume expanders depending on the underlying etiology. **Hypotension** secondary to actual or relative hypovolemia, which also reduces perfusion, initially is managed by administration of crystalloid or colloid solutions and/or blood products.

Web site: http://www.delphion.com/details?pn=US06117838__

Patent Applications on Low Blood Pressure

As of December 2000, U.S. patent applications are open to public viewing.[10] Applications are patent requests which have yet to be granted. (The process to achieve a patent can take several years.) The following patent applications have been filed since December 2000 relating to low blood pressure:

- **Cardiac rhythm management system for hypotension**

  Inventor(s): Daum, Douglas R.; (Oakdale, MN), Scheiner, Avram; (Vadnais Heights, MN)

  Correspondence: Schwegman, Lundberg, Woessner & Kluth, P.A.; P.O. Box 2938; Minneapolis; MN; 55402; US

  Patent Application Number: 20020147475

  Date filed: April 10, 2001

  Abstract: A cardiac rhythm management system detects **hypotension** based on a measurement of thoracic impedance. It also provides therapy to treat the **hypotension.**

  Excerpt(s): The present system relates generally to cardiac rhythm management systems and particularly, but not by way of limitation, to a such a system for **hypotension.** When functioning properly, the human heart maintains its own intrinsic rhythm, and is capable of pumping adequate blood throughout the body's circulatory system. However, some people have irregular cardiac rhythms, referred to as cardiac arrhythmias. Such arrhythmias result in diminished blood circulation. One mode of treating cardiac arrhythmias uses drug therapy. Drugs are often effective at restoring normal heart rhythms. However, drug therapy is not always effective for treating arrhythmias of certain patients. For such patients, an alternative mode of treatment is needed. One such alternative mode of treatment includes the use of a cardiac rhythm management system. Such systems are often implanted in the patient and deliver therapy to the heart. Cardiac rhythm management systems include, among other things, pacemakers, also referred to as pacers. Pacers deliver timed sequences of low energy electrical stimuli, called pace pulses, to the heart, such as via an intravascular leadwire or catheter (referred to as a "lead") having one or more electrodes disposed in or about the heart. Heart contractions are initiated in response to such pace pulses (this is referred to as "capturing" the heart). By properly timing the delivery of pace pulses, the heart can be induced to contract in proper rhythm, greatly improving its efficiency as a pump. Pacers are often used to treat patients with bradyarrhythmias, that is, hearts that beat too slowly, or irregularly. Such pacers coordinate atrial and ventricular contractions to improve pumping efficiency. Cardiac rhythm management systems also include coordination devices for coordinating the contractions of both the right and left sides of the heart for improved pumping efficiency.

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[10] This has been a common practice outside the United States prior to December 2000.

Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

- **Feedback control of ultrafiltration to prevent hypotension**

  Inventor(s): Gelfand, Mark; (New York, NY), Levin, Howard R.; (Teaneck, NJ), O'Mahony, John; (Hackensack, NJ)

  Correspondence: Nixon & Vanderhye P.C.; 1100 North Glebe RD., 8th Floor; Arlington; VA; 22201; US

  Patent Application Number: 20020085951

  Date filed: December 29, 2000

  Abstract: A method and system for the extracorporeal treatment of blood to remove fluid from the fluid overloaded patient is disclosed that non-invasively measures an oxygen level in the venous blood. The oxygen blood level is used to detect when **hypotension** is about to occur in a patient. The oxygen level measurements are used as feedback signals. These feedback signals are applied to automatically control the rate of fluid extraction to achieve the desired clinical outcome and avoid precipitating a hypotensive crisis in the patient.

  Excerpt(s): The present invention relates to an apparatus for the extracorporeal treatment of blood and more specifically to the automatic control of fluid removal from the blood of patients suffering from fluid overload and averting therapy induced **hypotension.** Renal Replacement Therapy (RRT) has evolved from the long, slow hemodialysis treatment regime of the 1960's to a diverse set of therapy options, the vast majority of which employ high permeability membrane devices and ultrafiltration control systems. Biologic kidneys remove metabolic waste products, other toxins, and excess water. They also maintain electrolyte balance and produce several hormones for a human or other mammalian body. An artificial kidney, also called a hemodialyzer or dialyzer, and attendant equipment and supplies are designed to replace the blood-cleansing functions of the biologic kidney. At the center of artificial kidney design is a semipermeable filter membrane that allows passage of water, electrolytes, and solute toxins to be removed from the blood. The membrane retains in the blood, the blood cells, plasma proteins and other larger elements of the blood.

  Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

- **Hypotension**

  Inventor(s): Eckhart, Andrea D.; (Durham, NC), Koch, Walter J.; (Durham, NC)

  Correspondence: Nixon & Vanderhye P.C.; 8th Floor; 1100 North Glebe Road; Arlington; VA; 22201; US

  Patent Application Number: 20020165118

  Date filed: October 31, 2001

  Abstract: The present invention relates, in general, to **hypotension** and, in particular, to a novel therapeutic target for lowering blood pressure.

  Excerpt(s): This application claims priority from Provisional Application No. 60/244,210, filed Oct. 31, 2000, the entire content of which is incorporated herein by reference. High blood pressure or hypertension is a prevalent disease in the United States and is a leading cause of morbidity and mortality. Understanding the

mechanisms that lead to hypertension is critical to improve existing health care for this disorder.

Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

- **Method and apparatus for non-invasive blood constituent monitoring**

  Inventor(s): Miller, David R.; (Morgan, UT), Steuer, Robert R.; (Pleasant View, UT)

  Correspondence: Jacobson Holman Pllc; 400 Seventh Street N.W.; Suite 600; Washington; DC; 20004; US

  Patent Application Number: 20010039376

  Date filed: January 30, 2001

  Abstract: A system for determining a biologic constituent including hematocrit transcutaneously, noninvasively and continuously. A finger clip assembly includes including at least a pair of emitters and a photodiode in appropriate alignment to enable operation in either a transmissive mode or a reflectance mode. At least one predetermined wavelength of light is passed onto or through body tissues such as a finger, earlobe, or scalp, etc. and attenuation of light at that wavelength is detected. Likewise, the change in blood flow is determined by various techniques including optical, pressure, piezo and strain gage methods. Mathematical manipulation of the detected values compensates for the effects of body tissue and fluid and determines the hematocrit value. If an additional wavelength of light is used which attenuates light substantially differently by oxyhemoglobin and reduced hemoglobin, then the blood oxygen saturation value, independent of hematocrit may be determined. Further, if an additional wavelength of light is used which greatly attenuates light due to bilirubin (440 nm) or glucose (1060 nm), then the bilirubin or glucose value may also be determined. Also how to determine the hematocrit with a two step DC analysis technique is provided. Then a pulse wave is not required, so this method may be utilized in states of **low blood pressure** or low blood flow.

  Excerpt(s): The present invention is related to U.S. Pat. Nos. 5,372,136 and 5,499,627 the text and drawings of which are incorporated herein by reference as if reproduced in full. The present invention relates to improvements in the systems and methods for non-invasively measuring one or more biologic constituent concentration values. More particularly, the present invention relates to non-invasive spectrophotometric systems and methods for quantitatively and continuously monitoring the hematocrit and other blood parameters. Modern medical practice utilizes a number of procedures and indicators to assess a patient's condition. One of these indicators is the patient's hematocrit. Hematocrit (often abbreviated as HCT) is the volume expressed as a percentage of the patient's blood which is occupied by red corpuscles, commonly referred to as red blood cells. The present invention is presented in the context of hematocrit. However, it is to be understood that the teachings of the present invention apply to any desired biologic constituent parameter.

  Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

- **Method of blood pressure moderation**

  Inventor(s): Grey, Thomas L.; (Carlsbad, CA), Gruzdowich, Gregory J.; (Carlsbad, CA), Swenson, David D.; (Carlsbad, CA)

  Correspondence: Crockett & Crockett; 24012 Calle DE LA Plata #400; Laguna Hills; CA; 92653; US

  Patent Application Number: 20010020177

  Date filed: January 22, 2001

  Abstract: A method of controlling the blood pressure in a patient with high blood pressure or **low blood pressure** utilizing a non-invasive nerve stimulation device applied to the wrist.

  Excerpt(s): This is a continuation of U.S. application Ser. No. 09/307,272 filed May 7, 1999, now U.S. Pat. No. 6,_____,_____. This invention relates to moderation of blood pressure. High blood pressure and **low blood pressure** are usually treated with drugs. Several proposals have been made to treat blood pressure with electrical stimulus applied to the body. For example, Terry, et al, Treating Refractory Hypertension By Nerve Stimulation, U.S. Pat. No. 5,707,400 (Jan. 13, 1998) proposes implantation of an electrical coil around the vagus nerve, which runs superficially through the neck, and stimulation of the vagus nerve to lower high blood pressure. Zhu, Blood Pressure Depressor, U.S. Pat. No. 5,891,181 (Apr. 6, 1999) proposes electrical stimulation of nerves in the ear lobe to lower blood pressure. Pomeranz, et al, Electrotherapy Acupuncture Apparatus and Method, U.S. Pat. No. 4,566,064 (Dec. 3 1985) mentions blood pressure as an indication for electro-acupuncture, but does not mention any point of application.

  Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

- **System for noninvasive hematocrit monitoring**

  Inventor(s): Harris, David H.; (Ogden, UT), Steuer, Robert R.; (Pleasant View, UT)

  Correspondence: Jacobson Holman Pllc; 400 Seventh Street N.W.; Suite 600; Washington; DC; 20004; US

  Patent Application Number: 20020038079

  Date filed: June 13, 2001

  Abstract: A system for determining the hematocrit transcutaneously and noninvasively. Disclosed are a finger clip assembly and an earlobe clip assembly, each including at least a pair of emitters and a photodiode in appropriate alignment to enable operation in either a transmissive mode or a reflectance mode. At least two, and preferably three, predetermined wavelengths of light are passed onto or through body tissues such as the finger, earlobe, or scalp, etc. and the extinction of each wavelength is detected. Mathematical manipulation of the detected values compensates for the effects of body tissue and fluid and determines the hematocrit value. If a fourth wavelength of light is used which is extinguished substantially differently by oxyhemoglobin and reduced hemoglobin and which is not substantially extinguished by plasma, then the blood oxygen saturation value, independent of hematocrit, may be determined.It is also disclosed how to detect and analyze multiple wavelengths using a logarithmic DC analysis technique. Then a pulse wave is not required. So this method may be utilized in states of **low blood pressure** or low blood flow.

Excerpt(s): This application is a divisional of U.S. patent application Ser. No. 08/011,882, filed on Feb. 1, 1993, which is a continuation of U.S. patent application Ser. No. 07/598,189, filed on Oct. 16, 1990, now abandoned. 1. The Field of the Invention. This invention relates to systems and methods for noninvasively measuring one or more biologic constituent values. More particularly, the present invention relates to noninvasive spectrophotometric systems and methods for quantitatively and continuously monitoring the hematocrit and other blood parameters of a subject.

Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

Keeping Current

In order to stay informed about patents and patent applications dealing with low blood pressure, you can access the U.S. Patent Office archive via the Internet at the following Web address: **http://www.uspto.gov/patft/index.html**. You will see two broad options: (1) Issued Patent, and (2) Published Applications. To see a list of issued patents, perform the following steps: Under "Issued Patents," click "Quick Search." Then, type "low blood pressure" (or synonyms) into the "Term 1" box. After clicking on the search button, scroll down to see the various patents which have been granted to date on low blood pressure.

You can also use this procedure to view pending patent applications concerning low blood pressure. Simply go back to **http://www.uspto.gov/patft/index.html**. Select "Quick Search" under "Published Applications." Then proceed with the steps listed above.

CHAPTER 6. BOOKS ON LOW BLOOD PRESSURE

Overview

This chapter provides bibliographic book references relating to low blood pressure. In addition to online booksellers such as **www.amazon.com** and **www.bn.com**, excellent sources for book titles on low blood pressure include the Combined Health Information Database and the National Library of Medicine. Your local medical library also may have these titles available for loan.

Book Summaries: Federal Agencies

The Combined Health Information Database collects various book abstracts from a variety of healthcare institutions and federal agencies. To access these summaries, go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. You will need to use the "Detailed Search" option. To find book summaries, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer. For the format option, select "Monograph/Book." Now type "low blood pressure" (or synonyms) into the "For these words:" box. You should check back periodically with this database which is updated every three months. The following is a typical result when searching for books on low blood pressure:

- **Medical Emergencies in the Dental Office. 5th ed**

  Source: St. Louis, MO: Mosby, Inc. 2000. 540 p.

  Contact: Available from Mosby, Inc. 11830 Westline Industrial Drive, St. Louis, MO 63146. (800) 426-4545. E-mail: customer.support@mosby.com. Website: www.mosby.com. PRICE: $52.95 plus shipping and handling. ISBN: 1556644205.

  Summary: Maintaining a high level of skill in the prevention, recognition, and management of medical emergencies is important in the field of dentistry. This textbook covers the management of medical emergencies in the dental office. Thirty chapters are offered in eight sections: prevention, unconsciousness, respiratory distress, altered consciousness, seizures, drug related emergencies, chest pain, and cardiac arrest. Specific topics include medicolegal considerations, vasodepressor syncope (fainting), postural hypotension (low blood pressure and feeling faint upon getting up from a

prone or semi prone position), acute adrenal insufficiency, differential diagnosis, airway obstruction, hyperventilation, asthma, heart failure, acute pulmonary edema (fluid in the lungs), diabetes mellitus, thyroid gland dysfunction, cerebrovascular accident (stroke), drug overdose reactions, allergy, angina pectoris, acute myocardial infarction, and cardiac arrest and cardiopulmonary resuscitation. The text concludes with a quick reference section to life threatening situations (offered in algorithm format) and a subject index. Each chapter includes black and white photographs and extensive references.

Chapters on Low Blood Pressure

In order to find chapters that specifically relate to low blood pressure, an excellent source of abstracts is the Combined Health Information Database. You will need to limit your search to book chapters and low blood pressure using the "Detailed Search" option. Go to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find book chapters, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Book Chapter." Type "low blood pressure" (or synonyms) into the "For these words:" box. The following is a typical result when searching for book chapters on low blood pressure:

- **Clinical Disorders of Renal Function in Acute Liver Failure**

  Source: in Arroyo, V., et al, eds. Ascites and Renal Dysfunction in Liver Disease: Pathogenesis, Diagnosis, and Treatment. Malden, MA: Blackwell Science, Inc. 1999. p.63-78.

  Contact: Available from Blackwell Science, Inc. 350 Main Street, Malden, MA 02148. (800) 215-1000 or (781)-388-8250. Fax (781) 388-8270. E-mail: csbooks@blacksci.com. Website: www.blackwellscience.com. PRICE: $125.00 plus shipping and handling. ISBN: 0632043423.

  Summary: Acute liver failure (ALF) is a core term that identifies a group of patients developing encephalopathy (abnormal function of the brain tissues) less than 12 weeks after the onset of jaundice, in the absence of underlying liver disease. These patients have important differences in clinical features and prognosis, depending on the etiology (cause), the time from the onset of jaundice to the development of encephalopathy, and the functional hepatic (liver) reserve. The development of renal (kidney) failure in such patients is commonplace. This chapter on clinical disorders of kidney function in ALF is from a textbook on ascites and renal dysfunction in liver disease. The key pathophysiologic features associated with the development of kidney failure are a decrease in kidney blood flow as a consequence of systemic hypotension (low blood pressure), and vasoconstriction within the kidney circulation. The causes of vasoconstriction are multifactorial, including activation of the sympathetic nervous system and the renin-angiotensin-aldosterone system and the development of endotoxemia with production of eicosanoids and free radicals. The chapter concludes with a discussion of renal function as a preoperative risk factor for early posttransplant mortality (death) and a review of treatment strategies for these disorders of kidney function in ALF. 3 figures. 1 table. 81 references.

- **Complications of Chronic Dialysis Therapy**

  Source: in Gutch, C.F.; Stoner, M.H.; Corea, A.L. Review of Hemodialysis for Nurses and Dialysis Personnel. 6th ed. St. Louis, MO: Mosby. 1999. p. 192-212.

Contact: Available from Harcourt Publishers. Foots Cray High Street, Sidcup, Kent DA14 5HP UK. 02083085700. Fax 02083085702. E-mail: cservice@harcourt.com. Website: www.harcourt-international.com. PRICE: $37.95 plus shipping and handling. ISBN: 0815120990.

Summary: Chronic dialysis therapy has extended the lives of hundreds of thousands of patients. The treatment, however, can be associated with significant acute and chronic complications. This chapter on the complications of chronic dialysis therapy is from a nursing text that poses questions and then answers those questions with the aim of giving a good understanding of the basic principles, basic diseases, and basic problems in the treatment of kidney patients by dialysis. Many complications in patients with end stage renal disease (ESRD) are part of the uremic syndrome and are unrelated to the dialysis treatment itself. Dialysis related complications include central nervous system (CNS) abnormalities (headache, weakness, fatigue, apathy, nausea), hypotension (low blood pressure), fluid overload (edema), hypertension (high blood pressure), congestive heart failure, arrhythmias, muscle cramping, chills and fever (febrile reactions), allergic reactions, and itching (pruritis). The author discusses medical problems associated with ESRD, including anemia and its treatment (often with erythropoietin or transfusions), the complications of blood transfusions, renal osteodystrophy (bone disease related to abnormalities of calcium and phosphorus metabolism), joint disorders (including pseudogout, which is related to elevated uric acid levels), dialysis amyloidosis, carpal tunnel syndrome (CTS), gastrointestinal problems (peptic ulcer disease, constipation, and ascites, or fluid collection in the peritoneal cavity), hepatitis, neuropathy, reproduction problems, and insomnia (inability to sleep). The authors concludes with a discussion of dialysis in the elderly, the role of exercise for dialysis patients, dialysis for people with diabetes mellitus, and the psychological consequences of long term dialysis.

- **Complications of Dialysis in Diabetic Patients**

  Source: in Lameire, N. and Mehta, R.L., eds. Complications of Dialysis. New York, NY: Marcel Dekker, Inc. 2000. p. 697-704.

  Contact: Available from Marcel Dekker, Inc. Cimarron Road, P.O. Box 5005, Monticello, NY 12701. (800) 228-1160 or (845) 796-1919. Fax (845) 796-1772. E-mail: custserv@dekker.com. International E-mail: intlcustserv@dekker.com. Website: www.dekker.com. PRICE: $250.00 plus shipping and handling. ISBN: 0824788710.

  Summary: Dialysis patients with diabetes mellitus comprise the largest subgroup of patients in end stage renal disease (ESRD) treatment programs in developed countries. This patient population is unfortunately also subject to greater morbidity and mortality when compared to nondiabetic dialysis patients. This chapter on the complications of dialysis in patients with diabetes is from a book that offers a comprehensive, multidisciplinary resource for the nephrologist and caregiver providing dialysis, covering all aspects of dialysis therapies and their complications. The authors of this chapter note that older age at the time of dialysis initiation and the presence of often advanced microvascular and macrovascular disease account for this excess rate of complications and death on dialysis. The management of dialysis patients with diabetes requires an aggressive, preemptive, multidisciplinary, and patient education oriented approach, which must often be led by the nephrologist (kidney specialist) who has the most frequent contact with the patient. Peripheral vascular, cardiovascular, and cerebrovascular disease, retinopathy (eye disease), gastropathy, and dialysis associated complications are the major contributors to co-morbidity in diabetic dialysis patients. Hemodialysis related complications include hypotension (low blood pressure), hypertension (high blood pressure), high interdialytic weight gain, vascular access

problems, access thrombosis (clotting), ischemic monomelic neuropathy, and venous hypertension. Other problems discussed include bone disease, diabetic retinopathy, undernutrition, and hyperglycemia (high blood sugar levels). The complications of peritoneal dialysis in patients with diabetes including peritonitis, underdialysis, undernutrition, and hyperglycemia. The authors conclude by noting that the increasing prevalence of type 2 diabetes will require that nephrologists target the problems prevalent in this population in order to reduce morbidity (illness) and mortality (death). 2 tables. 46 references.

- **Muse of Erections: Urethral Suppository with Vasoactive Drugs**

  Source: in Newman, A.J. Beyond Viagra: Plain Talk About Treating Male and Female Sexual Dysfunction. Montgomery, AL: Starrhill Press. 1999. p. 76-77.

  Contact: Available from Black Belt Press. P.O. Box 551, Montgomery, AL 36101. (800) 959-3245 or (334) 265-6753. Fax (334) 265-8880. PRICE: $13.95 plus shipping and handling. ISBN: 1573590142.

  Summary: In early 1997 the intraurethral administration of alprostadil was approved for clinical use. This brief chapter on urethral suppository with vasoactive drugs is from a book that discusses the drug sildenafil (Viagra) in the context of a larger discussion about sexuality and sexual dysfunction. The dose is introduced through a small, plastic applicator placed inside the opening of the urethra. The doses delivered by the intraurethral administrations are significantly larger than the dose delivered by intracavernous injection. The side effects associated with intraurethral administration of alprostadil are similar to those associated with intracavernous injection. The primary complaint includes penile pain; less often reported are side effects from systemic absorption (including **low blood pressure** in about 4 percent of patients). Today the intraurethral suppository plays a minor role in the treatment of patients with erectile dysfunction, particularly in light of the use of the oral drug, Viagra. When Viagra fails, some patients may prefer a urethral suppository over intracavernous injections. While a few patients may continue to need MUSE, most will move on to some other treatment model because of penile pain, lack of effectiveness, and cost ($140 for six pellets). The chapter is written in nontechnical language, but includes enough medical information to be of use to medical professionals wishing to learn more about sexuality and sexual dysfunction. 1 figure.

- **Neuropathy**

  Source: in Devlin, J.T. and Schneider, S.H., eds. Handbook of Exercise in Diabetes. Alexandria, VA: American Diabetes Association. 2002. p.463-496.

  Contact: Available from American Diabetes Association (ADA). Order Fulfillment Department, P.O. Box 930850, Atlanta, GA 31193-0850. (800) 232-6733. Fax (770) 442-9742. Website: www.diabetes.org. PRICE: $69.95 plus shipping and handling. ISBN: 1580400191.

  Summary: Neuropathy (nerve disease) complicates the management of diabetes. This chapter on diabetic neuropathy (nerve disease associated with diabetes) is from a book that provides a practical, comprehensive guide to diabetes and exercise for health care professionals involved in patient care. Somatic neuropathy (calluses and warm insensate feet) with loss of reflexes or vibration perception increases susceptibility to ulcers, Charcot joint destruction, and limb loss. Autonomic nerve dysfunction impairs the ability to exercise because of decreased systolic and diastolic cardiac function; postural hypotension (low blood pressure) and nocturnal or supine hypertension (high blood

pressure); impaired cutaneous (skin) blood flow and sweating; impaired pupillary reaction and night vision; and gastroparesis (reduced gastrointestinal motility) with irregular fuel delivery. Preferred exercise for this population are non weight-bearing. Rates of perceived exertion is a safer guide for exercise intensity than heart rate. The authors provide a paradigm for exercise in patients with cardiovascular autonomic neuropathy. The authors also note that foot care education reduces the risk of ulcers and gangrene by one-third. 3 figures. 2 tables. 105 references.

- **Tamsulosin: Role in the Management of Benign Prostatic Hyperplasia**

  Source: in Narayan, P. Benign Prostatic Hyperplasia. London, England: Churchill Livingstone. 2000. p. 171-180.

  Contact: Available from Harcourt Publishers. Foots Cray High Street, Sidcup, Kent DA14 5HP UK. 02083085700. Fax 02083085702. E-mail: cservice@harcourt.com. Website: www.harcourt-international.com. PRICE: $149.00 plus shipping and handling. ISBN: 0443056374.

  Summary: Symptomatic benign prostatic hyperplasia (BPH) is a common disease that affects all men with aging. BPH is currently considered a disease that affects the quality of life; therefore, treatments are currently designed to relieve symptoms and reduce side effects. This chapter on the use of the alpha blocker, tamsulosin, in the clinical management of BPH is from a textbook that compiles data and commentary from the world's leading experts in this field. Approximately 80 percent of the patients receiving drug therapy for BPH are prescribed alpha blockers by their primary care physician. The first two selective, long acting alpha 1 receptor antagonists to be approved for treatment of BPH in the United States were terazosin and doxazosin. Tamsulosin hydrochloride (brand name Flomax), a new class of sulfonyl derivative, a uroselective alpha adrenergic blocker, was FDA-approved in 1997. The authors cover the scientific rationale for this drug use, the structure and classification of alpha adrenergic receptors, the clinical pharmacology and pharmacokinetics of tamsulosin, drug interactions, carcinogenesis (development of cancer), adverse reactions to the drug, and clinical studies investigating its use and efficacy. The authors conclude that tamsulosin overall has several advantages over the alpha blockers currently in use. The long action of tamsulosin allows for once a day dosing. Its therapeutic effect, as indicated by improvements in symptoms score, is realized as early as one week after treatment. Additional advantages include the lack of side effects, even in patients at risk of postural hypotension (low blood pressure) such as the elderly and those on multiple cardiac medications, and patients who have comorbid conditions such as diabetes and cardiac disease. Finally, the lower side effect profile of tamsulosin may also allow its use in combination with other relaxants and newer agents in the treatment of lower urinary tract symptoms. 2 tables. 99 references.

- **ESRD in the Elderly**

  Source: in Gutch, C.F.; Stoner, M.H.; Corea, A.L. Review of Hemodialysis for Nurses and Dialysis Personnel. 6th ed. St. Louis, MO: Mosby. 1999. p. 300-306.

  Contact: Available from Harcourt Publishers. Foots Cray High Street, Sidcup, Kent DA14 5HP UK. 02083085700. Fax 02083085702. E-mail: cservice@harcourt.com. Website: www.harcourt-international.com. PRICE: $37.95 plus shipping and handling. ISBN: 0815120990.

  Summary: This chapter on end stage renal disease (ESRD) in the elderly is from a nursing text that poses questions and then answers those questions with the aim of

giving a good understanding of the basic principles, basic diseases, and basic problems in the treatment of kidney patients by dialysis. The author of the chapter notes that since the early 1990s, at least 45 percent of new patients entering the ESRD program in the United States each year have been over 65 years old. Regardless of the treatment modality selected, some changes are required to adapt the therapy to the special needs of geriatric patients. Comorbid conditions are much more common in older patients and can complicate the treatment of ESRD, as can psychosocial and socioeconomic factors. Most elderly people with renal failure can benefit from renal replacement therapy, often returning to a level of physical functioning and quality of life that is either equivalent to that of people their age without ESRD or at least acceptable to the patient. The author discusses trial dialysis, the different types of ESRD treatment modalities available to elderly patients, transplantation for elderly patients, the advantages of peritoneal dialysis (PD) for elderly patients, complications of hemodialysis in elderly patients, monitoring nutrition in this patient population, problems with medications in elderly ESRD patients, and the role of exercise. The author concludes that the nature and frequency of intradialytic complications is similar to that of younger hemodialysis patients, with one exception: hemodynamic instability is more common in elderly people (causing intradialytic cardiac arrhythmias and hypotensive, or **low blood pressure,** episodes).

- **Chapter 174: Infections of the Skin and Underlying Tissue**

  Source: in Berkow, R., ed. The Merck Manual of Medical Information: Home Edition (online version). Rahway, NJ: Merck and Company, Inc. 2000. 6 p.

  Contact: Available online from Merck and Company, Inc. (800) 819-9456. Website: www.merck.com/pubs/mmanual_home/contents.htm. Also available from your local book store. PRICE: $29.95 plus shipping.

  Summary: This chapter provides the general public and people who have infections of the skin and underlying tissue with information on the symptoms, diagnosis, and treatment of cellulitis, necrotizing fasciitis, skin gangrene, lymphadenitis, acute lymphangitis, and skin abscesses. Cellulitis is a spreading bacterial infection in the skin and underlying tissues, usually in the legs. Although many different bacteria can cause cellulitis, Streptococcus is the most common. Initial symptoms include redness and tenderness over a small area of skin. As the infection spreads, the lymph nodes may become enlarged and tender. Other symptoms include fever, chills, a rapid heart rate, headache, and **low blood pressure.** Diagnosis is based on analysis of samples taken from the blood, skin, pus, or an open wound. Treatment involves taking antibiotics; keeping the affected part of the body immobile and elevated; and applying cool, wet dressings to the infected area. Necrotizing fasciitis is a severe form of cellulitis that destroys infected tissue under the skin. A strain of Streptococcus causes this infection. Symptoms include fever, rapid heart rate, and mental deterioration. Treatment is antibiotic therapy and surgical removal of dead tissue. Skin gangrene is the death of tissue followed by bacterial invasion. The type of bacteria most commonly involved in skin gangrene is Clostridia. Major injuries can interrupt the supply of blood and oxygen to an injured area, creating a situation that allows clostridia to grow. Infection with clostridia makes the skin warm. Skin changes in color from pale to red or bronze and finally to green. Diagnosis is based on symptoms and imaging and laboratory tests. Treatment involves taking antibiotics and having the destroyed tissue surgically removed. High pressure oxygen therapy may also be used. Lymphadenitis is an inflammation of the lymph nodes caused by infection from any type of organism. Symptoms include enlarged tender and painful lymph nodes. Treatment depends on the

organism causing the infection. Acute lymphangitis is an inflammation of lymphatic vessels that is usually caused by a streptococcal infection. Symptoms include red, irregular, warm, tender streaks under the skin; enlarged and tender lymph nodes; fever; chills; rapid heart rate; and headache. Antibiotics are used to treat this disease. Skin abscesses are collections of pus caused by a bacterial infection. Symptoms include swelling, pain, and tenderness. Treatment usually involves cutting the abscess open and draining the pus. Antibiotics may be needed if the infection has spread or if the abscess is on the middle or upper part of the face.

- **Other Symptoms of Parkinson's Disease and Their Management**

  Source: in Biziere, K.E.; Kurth, M.C. Living with Parkinson's Disease. New York, NY: Demos Vermande. 1997. p. 29-44.

  Contact: Available from Demos Vermade. 386 Park Avenue South, Suite 201, New York, NY 10016. (800) 532-8663 or (212) 683-0072; Fax (212) 683-0118. PRICE: $59.95 plus shipping and handling. ISBN: 0939957744.

  Summary: This chapter, from a book that describes Parkinson's disease, discusses the related symptoms of the disease and their management. Topics covered include difficulty walking, postural instability, gastrointestinal problems (including swallowing difficulties), urinary urgency, sleep disorders, breathing difficulties, speech problems, **low blood pressure,** depression, abnormal temperature perception and excessive sweating, and sexual dysfunction. The section on speech difficulties notes that increased stiffness in the muscles surrounding the vocal cords is a contributing factor to speech difficulties. Another characteristic change in speech is the tendency to talk in a monotone; the natural tonal variation and rhythm of speech is lost. Imprecise articulation is also common. This section describes the Lee Silverman Voice Treatment (LSVT), a program of voice therapy developed specifically for people with Parkinson's disease. The author cautions that speech difficulties do not always fully respond to antiparkinsonian medication and may contribute to the isolation of the patient by making communication difficult.

- **Complications During Hemodialysis**

  Source: in Nissenson, A.R.; Fine, R.N. Dialysis Therapy. Philadelphia, PA: Hanley and Belfus, Inc. 2002. p. 171-179.

  Contact: Available from Hanley and Belfus, Inc. Medical Publishers, 210 South 13th Street, Philadelphia, PA 19107. (215) 546-7293 or (215) 546-4995. (800) 962-1892. Fax: (215) 790-9330. Website: www.hanleyandbelfus.com. PRICE: $59.95; plus shipping and handling. ISBN: 1560534265.

  Summary: With improving outcomes, replacement of renal (kidney) function by hemodialysis (HD) is a well established therapy, but it is not free of complications. This chapter is one part of a section on complications during hemodialysis, from a textbook on dialysis therapy. The chapter covers hypotension (low blood pressure), muscle cramps, dialyzer reactions, hypoxemia (low levels of oxygen in the blood), febrile (fever) reactions, dialysis disequilibrium syndrome (DDS, a neurologic disorder characterized by headaches and nausea in the mild form and confusion, blurred vision, seizures and even coma in the more severe forms), bleeding, pruritis (itching), heart rate disturbances, cardiopulmonary arrest (heart stopping) during dialysis, air embolism (a rare complication), hemolysis (the breakdown of red blood cells), and electrolyte disturbances. The author concludes that the incidence of clinical problems during HD has been greatly reduced, thanks to technological advances and to higher standards in

the routine delivery of therapy. Despite these advances, clinical problems may still occur, especially in elderly or unstable patients, or in individuals with underlying comorbid (other illness present at the same time) conditions. Accurate supervision and physical examination of the patient may prevent several of these problems. Hemodialysis can be better tolerated and done more smoothly when potential clinical problems are anticipated and appropriate countermeasures are instituted in a timely fashion. 3 figures.

- **Diabetes and Hypertension**

  Source: in Johnstone, M.T. and Veves, A. Diabetes and Cardiovascular Disease. Totowa, NJ: The Humana Press, Inc. 2001. p. 123-129.

  Contact: Humana Press, Inc. 999 Riverview Dr., Suite 208 Totowa, NJ 07512. (973) 256-1699. Fax (973) 256-8341. E-mail: humana@humanapr.com PRICE: $125.00, plus shipping and handling. ISBN: 089603755X.

  Summary: With over ten million diagnosed patients and another five million undiagnosed, diabetes mellitus and its complications is a major public health problem that will assume epidemic proportions as the population grows older. This chapter on diabetes and hypertension is from a textbook that offers physicians practical knowledge about cardiovascular disease and diabetes. This chapter is in Part I, which focuses on pathophysiology, including the mechanisms and risk factors for diabetic cardiovascular disease. The author notes that many factors contribute to increased cardiovascular disease (CVD) in persons with diabetes. These factors include hypertension (high blood pressure), dyslipidemia (disordered levels of fats in the blood), platelet hyperactivity, endothelial (the cells lining the body cavity and cardiovascular system) abnormalities, as well as hyperglycemia (high blood glucose), microalbuminuria (protein in the urine), and hyperinsulinemia (high levels of insulin in the blood). The author discusses characteristics of hypertension in people with diabetes and then focuses on treatment goals in this population. The goal of hypertension treatment in persons with diabetes is to prevent hypertension-associated death and disability. The level of blood pressure and the diagnosis of hypertension should be based on multiple blood pressure measurements obtained in a standardized fashion on at least three occasions. Because of the tendency to orthostatic hypotension (abnormally **low blood pressure** upon standing), standing blood pressures should be measured at each office visit. Pharmacologic (drug) therapy should be initiated when lifestyle modifications do not lower blood pressure to less than 130 over 85 mmHg in people with diabetes. Combination therapy is usually necessary for adequate blood pressure control; therapy should include an ACE inhibitor for maximal benefits in protecting against cardiovascular disease as well as renal (kidney) disease. 1 figure. 1 table. 30 references.

CHAPTER 7. PERIODICALS AND NEWS ON LOW BLOOD PRESSURE

Overview

In this chapter, we suggest a number of news sources and present various periodicals that cover low blood pressure.

News Services and Press Releases

One of the simplest ways of tracking press releases on low blood pressure is to search the news wires. In the following sample of sources, we will briefly describe how to access each service. These services only post recent news intended for public viewing.

PR Newswire

To access the PR Newswire archive, simply go to **http://www.prnewswire.com/**. Select your country. Type "low blood pressure" (or synonyms) into the search box. You will automatically receive information on relevant news releases posted within the last 30 days. The search results are shown by order of relevance.

Reuters Health

The Reuters' Medical News and Health eLine databases can be very useful in exploring news archives relating to low blood pressure. While some of the listed articles are free to view, others are available for purchase for a nominal fee. To access this archive, go to **http://www.reutershealth.com/en/index.html** and search by "low blood pressure" (or synonyms). The following was recently listed in this archive for low blood pressure:

- **MetaPhore Pharmaceutical's new enzyme eliminates IL-2 hypotension in mice**
  Source: Reuters Industry Breifing
  Date: March 27, 2001

- **Depression risk in elderly with low blood pressure**
  Source: Reuters Health eLine
  Date: March 08, 2000
- **Generic low blood pressure drug gets FDA OK**
  Source: Reuters Health eLine
  Date: March 04, 2003
- **Parkinson's disease can cause low blood pressure**
  Source: Reuters Health eLine
  Date: April 23, 2002
- **Hypotension may increase risk of respiratory events, neoplasia in elderly me**
  Source: Reuters Medical News
  Date: December 06, 1999
- **Low blood pressure a health risk in older me**
  Source: Reuters Health eLine
  Date: December 02, 1999

The NIH

Within MEDLINEplus, the NIH has made an agreement with the New York Times Syndicate, the AP News Service, and Reuters to deliver news that can be browsed by the public. Search news releases at **http://www.nlm.nih.gov/medlineplus/alphanews_a.html**. MEDLINEplus allows you to browse across an alphabetical index. Or you can search by date at the following Web page: **http://www.nlm.nih.gov/medlineplus/newsbydate.html**. Often, news items are indexed by MEDLINEplus within its search engine.

Business Wire

Business Wire is similar to PR Newswire. To access this archive, simply go to **http://www.businesswire.com/**. You can scan the news by industry category or company name.

Market Wire

Market Wire is more focused on technology than the other wires. To browse the latest press releases by topic, such as alternative medicine, biotechnology, fitness, healthcare, legal, nutrition, and pharmaceuticals, access Market Wire's Medical/Health channel at **http://www.marketwire.com/mw/release_index?channel=MedicalHealth**. Or simply go to Market Wire's home page at **http://www.marketwire.com/mw/home**, type "low blood pressure" (or synonyms) into the search box, and click on "Search News." As this service is technology oriented, you may wish to use it when searching for press releases covering diagnostic procedures or tests.

Search Engines

Medical news is also available in the news sections of commercial Internet search engines. See the health news page at Yahoo (**http://dir.yahoo.com/Health/News_and_Media/**), or

you can use this Web site's general news search page at **http://news.yahoo.com/**. Type in "low blood pressure" (or synonyms). If you know the name of a company that is relevant to low blood pressure, you can go to any stock trading Web site (such as **http://www.etrade.com/**) and search for the company name there. News items across various news sources are reported on indicated hyperlinks. Google offers a similar service at **http://news.google.com/**.

BBC

Covering news from a more European perspective, the British Broadcasting Corporation (BBC) allows the public free access to their news archive located at **http://www.bbc.co.uk/**. Search by "low blood pressure" (or synonyms).

Newsletter Articles

Use the Combined Health Information Database, and limit your search criteria to "newsletter articles." Again, you will need to use the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. Go to the bottom of the search page where "You may refine your search by." Select the dates and language that you prefer. For the format option, select "Newsletter Article." Type "low blood pressure" (or synonyms) into the "For these words:" box. You should check back periodically with this database as it is updated every three months. The following is a typical result when searching for newsletter articles on low blood pressure:

- **Cautions in the Use of Oral Agents for the Management of Erectile Dysfunction**

  Source: AUA News. 3(4): 20. July-August 1998.

  Contact: Available from AUA News. Williams and Wilkins, 351 West Camden Street, Baltimore, MD 21201-2436.

  Summary: Few if any pharmaceutical agents have experienced more heralded releases or had more public media coverage than Viagra (sildenafil citrate), a new oral therapy for erectile dysfunction. This selective inhibitor of cyclic guanosine monophosphate specific phosphodiesterase type 5 acts on corpus cavernosal smooth muscle (in the penis) and has been extensively evaluated in studies of men with erectile dysfunction (ED) of organic, psychogenic, and mixed etiologies. This brief article reviews the cautions in the use of this drug for the management of ED. In clinical trials, adverse events were reported as mild, including headache, flushing, and dyspepsia occurring in 6 to 18 percent of men. Mild and transient visual effects have also been reported (approximately 3 percent of men). The author reports that as of June 8, 1998, the Food and Drug Administration had received 16 unduplicated reports of deaths of men taking Viagra. At least 3 of the 16 reported deaths occurred in men who were treated with nitroglycerin. The package insert for Viagra clearly states that an absolute contraindication for this drug is the concomitant use of organic nitrates. Because of sildenafil's vasodilatory effects, it acts synergistically with nitrates. During nitrate therapy, high levels of nitric oxide (NO) are present in the circulation. Sildenafil increases the vasodilatory effect of circulating NO, causing precipitous and potentially serious hypotension (low blood pressure). Although most if not all urologists are aware of the contraindication of combining sildenafil and nitrates, this may not be well known to emergency room physicians or technicians. 1 table. 1 reference.

Academic Periodicals covering Low Blood Pressure

Numerous periodicals are currently indexed within the National Library of Medicine's PubMed database that are known to publish articles relating to low blood pressure. In addition to these sources, you can search for articles covering low blood pressure that have been published by any of the periodicals listed in previous chapters. To find the latest studies published, go to **http://www.ncbi.nlm.nih.gov/pubmed**, type the name of the periodical into the search box, and click "Go."

If you want complete details about the historical contents of a journal, you can also visit the following Web site: **http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi**. Here, type in the name of the journal or its abbreviation, and you will receive an index of published articles. At **http://locatorplus.gov/**, you can retrieve more indexing information on medical periodicals (e.g. the name of the publisher). Select the button "Search LOCATORplus." Then type in the name of the journal and select the advanced search option "Journal Title Search."

CHAPTER 8. RESEARCHING MEDICATIONS

Overview

While a number of hard copy or CD-ROM resources are available for researching medications, a more flexible method is to use Internet-based databases. Broadly speaking, there are two sources of information on approved medications: public sources and private sources. We will emphasize free-to-use public sources.

U.S. Pharmacopeia

Because of historical investments by various organizations and the emergence of the Internet, it has become rather simple to learn about the medications recommended for low blood pressure. One such source is the United States Pharmacopeia. In 1820, eleven physicians met in Washington, D.C. to establish the first compendium of standard drugs for the United States. They called this compendium the U.S. Pharmacopeia (USP). Today, the USP is a non-profit organization consisting of 800 volunteer scientists, eleven elected officials, and 400 representatives of state associations and colleges of medicine and pharmacy. The USP is located in Rockville, Maryland, and its home page is located at **http://www.usp.org/**. The USP currently provides standards for over 3,700 medications. The resulting USP DI® Advice for the Patient® can be accessed through the National Library of Medicine of the National Institutes of Health. The database is partially derived from lists of federally approved medications in the Food and Drug Administration's (FDA) Drug Approvals database, located at **http://www.fda.gov/cder/da/da.htm**.

While the FDA database is rather large and difficult to navigate, the Phamacopeia is both user-friendly and free to use. It covers more than 9,000 prescription and over-the-counter medications. To access this database, simply type the following hyperlink into your Web browser: **http://www.nlm.nih.gov/medlineplus/druginformation.html**. To view examples of a given medication (brand names, category, description, preparation, proper use, precautions, side effects, etc.), simply follow the hyperlinks indicated within the United States Pharmacopeia (USP).

Below, we have compiled a list of medications associated with low blood pressure. If you would like more information on a particular medication, the provided hyperlinks will direct you to ample documentation (e.g. typical dosage, side effects, drug-interaction risks, etc.).

The following drugs have been mentioned in the Pharmacopeia and other sources as being potentially applicable to low blood pressure:

Fludrocortisone

- **Systemic - U.S. Brands:** Florinef
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202244.html

Headache Medicines, Ergot Derivative-Containing

- **Systemic - U.S. Brands:** Cafergot; Cafertine; Cafetrate; D.H.E. 45; Ercaf; Ergo-Caff; Ergomar; Ergostat; Gotamine; Migergot; Wigraine
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202216.html

Midodrine

- **Systemic - U.S. Brands:** ProAmatine
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/203640.html

Commercial Databases

In addition to the medications listed in the USP above, a number of commercial sites are available by subscription to physicians and their institutions. Or, you may be able to access these sources from your local medical library.

Mosby's Drug Consult™

Mosby's Drug Consult™ database (also available on CD-ROM and book format) covers 45,000 drug products including generics and international brands. It provides prescribing information, drug interactions, and patient information. Subscription information is available at the following hyperlink: **http://www.mosbysdrugconsult.com/**.

PDR*health*

The PDR*health* database is a free-to-use, drug information search engine that has been written for the public in layman's terms. It contains FDA-approved drug information adapted from the Physicians' Desk Reference (PDR) database. PDR*health* can be searched by brand name, generic name, or indication. It features multiple drug interactions reports. Search PDR*health* at **http://www.pdrhealth.com/drug_info/index.html**.

Other Web Sites

Drugs.com (**www.drugs.com**) reproduces the information in the Pharmacopeia as well as commercial information. You may also want to consider the Web site of the Medical Letter, Inc. (**http://www.medletter.com/**) which allows users to download articles on various drugs and therapeutics for a nominal fee.

Researching Orphan Drugs

Although the list of orphan drugs is revised on a daily basis, you can quickly research orphan drugs that might be applicable to low blood pressure by using the database managed by the National Organization for Rare Disorders, Inc. (NORD), at **http://www.rarediseases.org/**. Scroll down the page, and on the left toolbar, click on "Orphan Drug Designation Database." On this page (**http://www.rarediseases.org/search/noddsearch.html**), type "low blood pressure" (or synonyms) into the search box, and click "Submit Query." When you receive your results, note that not all of the drugs may be relevant, as some may have been withdrawn from orphan status. Write down or print out the name of each drug and the relevant contact information. From there, visit the Pharmacopeia Web site and type the name of each orphan drug into the search box at **http://www.nlm.nih.gov/medlineplus/druginformation.html**. You may need to contact the sponsor or NORD for further information.

NORD conducts "early access programs for investigational new drugs (IND) under the Food and Drug Administration's (FDA's) approval 'Treatment INDs' programs which allow for a limited number of individuals to receive investigational drugs before FDA marketing approval." If the orphan product about which you are seeking information is approved for marketing, information on side effects can be found on the product's label. If the product is not approved, you may need to contact the sponsor.

The following is a list of orphan drugs currently listed in the NORD Orphan Drug Designation Database for low blood pressure:

- **Midodrine HC1 (trade name: Amatine)**
  http://www.rarediseases.org/nord/search/nodd_full?code=74
- **Midodrine HCI (trade name: Amatine)**
  http://www.rarediseases.org/nord/search/nodd_full?code=810

If you have any questions about a medical treatment, the FDA may have an office near you. Look for their number in the blue pages of the phone book. You can also contact the FDA through its toll-free number, 1-888-INFO-FDA (1-888-463-6332), or on the World Wide Web at **www.fda.gov**.

APPENDICES

APPENDIX A. PHYSICIAN RESOURCES

Overview

In this chapter, we focus on databases and Internet-based guidelines and information resources created or written for a professional audience.

NIH Guidelines

Commonly referred to as "clinical" or "professional" guidelines, the National Institutes of Health publish physician guidelines for the most common diseases. Publications are available at the following by relevant Institute[11]:

- Office of the Director (OD); guidelines consolidated across agencies available at **http://www.nih.gov/health/consumer/conkey.htm**
- National Institute of General Medical Sciences (NIGMS); fact sheets available at **http://www.nigms.nih.gov/news/facts/**
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines: **http://www.nlm.nih.gov/medlineplus/healthtopics.html**
- National Cancer Institute (NCI); guidelines available at **http://www.cancer.gov/cancerinfo/list.aspx?viewid=5f35036e-5497-4d86-8c2c-714a9f7c8d25**
- National Eye Institute (NEI); guidelines available at **http://www.nei.nih.gov/order/index.htm**
- National Heart, Lung, and Blood Institute (NHLBI); guidelines available at **http://www.nhlbi.nih.gov/guidelines/index.htm**
- National Human Genome Research Institute (NHGRI); research available at **http://www.genome.gov/page.cfm?pageID=10000375**
- National Institute on Aging (NIA); guidelines available at **http://www.nia.nih.gov/health/**

[11] These publications are typically written by one or more of the various NIH Institutes.

- National Institute on Alcohol Abuse and Alcoholism (NIAAA); guidelines available at **http://www.niaaa.nih.gov/publications/publications.htm**
- National Institute of Allergy and Infectious Diseases (NIAID); guidelines available at **http://www.niaid.nih.gov/publications/**
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); fact sheets and guidelines available at **http://www.niams.nih.gov/hi/index.htm**
- National Institute of Child Health and Human Development (NICHD); guidelines available at **http://www.nichd.nih.gov/publications/pubskey.cfm**
- National Institute on Deafness and Other Communication Disorders (NIDCD); fact sheets and guidelines at **http://www.nidcd.nih.gov/health/**
- National Institute of Dental and Craniofacial Research (NIDCR); guidelines available at **http://www.nidr.nih.gov/health/**
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); guidelines available at **http://www.niddk.nih.gov/health/health.htm**
- National Institute on Drug Abuse (NIDA); guidelines available at **http://www.nida.nih.gov/DrugAbuse.html**
- National Institute of Environmental Health Sciences (NIEHS); environmental health information available at **http://www.niehs.nih.gov/external/facts.htm**
- National Institute of Mental Health (NIMH); guidelines available at **http://www.nimh.nih.gov/practitioners/index.cfm**
- National Institute of Neurological Disorders and Stroke (NINDS); neurological disorder information pages available at **http://www.ninds.nih.gov/health_and_medical/disorder_index.htm**
- National Institute of Nursing Research (NINR); publications on selected illnesses at **http://www.nih.gov/ninr/news-info/publications.html**
- National Institute of Biomedical Imaging and Bioengineering; general information at **http://grants.nih.gov/grants/becon/becon_info.htm**
- Center for Information Technology (CIT); referrals to other agencies based on keyword searches available at **http://kb.nih.gov/www_query_main.asp**
- National Center for Complementary and Alternative Medicine (NCCAM); health information available at **http://nccam.nih.gov/health/**
- National Center for Research Resources (NCRR); various information directories available at **http://www.ncrr.nih.gov/publications.asp**
- Office of Rare Diseases; various fact sheets available at **http://rarediseases.info.nih.gov/html/resources/rep_pubs.html**
- Centers for Disease Control and Prevention; various fact sheets on infectious diseases available at **http://www.cdc.gov/publications.htm**

NIH Databases

In addition to the various Institutes of Health that publish professional guidelines, the NIH has designed a number of databases for professionals.[12] Physician-oriented resources provide a wide variety of information related to the biomedical and health sciences, both past and present. The format of these resources varies. Searchable databases, bibliographic citations, full-text articles (when available), archival collections, and images are all available. The following are referenced by the National Library of Medicine:[13]

- **Bioethics:** Access to published literature on the ethical, legal, and public policy issues surrounding healthcare and biomedical research. This information is provided in conjunction with the Kennedy Institute of Ethics located at Georgetown University, Washington, D.C.: **http://www.nlm.nih.gov/databases/databases_bioethics.html**
- **HIV/AIDS Resources:** Describes various links and databases dedicated to HIV/AIDS research: **http://www.nlm.nih.gov/pubs/factsheets/aidsinfs.html**
- **NLM Online Exhibitions:** Describes "Exhibitions in the History of Medicine": **http://www.nlm.nih.gov/exhibition/exhibition.html**. Additional resources for historical scholarship in medicine: **http://www.nlm.nih.gov/hmd/hmd.html**
- **Biotechnology Information:** Access to public databases. The National Center for Biotechnology Information conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information for the better understanding of molecular processes affecting human health and disease: **http://www.ncbi.nlm.nih.gov/**
- **Population Information:** The National Library of Medicine provides access to worldwide coverage of population, family planning, and related health issues, including family planning technology and programs, fertility, and population law and policy: **http://www.nlm.nih.gov/databases/databases_population.html**
- **Cancer Information:** Access to cancer-oriented databases: **http://www.nlm.nih.gov/databases/databases_cancer.html**
- **Profiles in Science:** Offering the archival collections of prominent twentieth-century biomedical scientists to the public through modern digital technology: **http://www.profiles.nlm.nih.gov/**
- **Chemical Information:** Provides links to various chemical databases and references: **http://sis.nlm.nih.gov/Chem/ChemMain.html**
- **Clinical Alerts:** Reports the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality: **http://www.nlm.nih.gov/databases/alerts/clinical_alerts.html**
- **Space Life Sciences:** Provides links and information to space-based research (including NASA): **http://www.nlm.nih.gov/databases/databases_space.html**
- **MEDLINE:** Bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the healthcare system, and the pre-clinical sciences: **http://www.nlm.nih.gov/databases/databases_medline.html**

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[12] Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINE*plus* (**http://medlineplus.gov/** or **http://www.nlm.nih.gov/medlineplus/databases.html**).

[13] See **http://www.nlm.nih.gov/databases/databases.html**.

- **Toxicology and Environmental Health Information (TOXNET):** Databases covering toxicology and environmental health: **http://sis.nlm.nih.gov/Tox/ToxMain.html**
- **Visible Human Interface:** Anatomically detailed, three-dimensional representations of normal male and female human bodies: **http://www.nlm.nih.gov/research/visible/visible_human.html**

The Combined Health Information Database

A comprehensive source of information on clinical guidelines written for professionals is the Combined Health Information Database. You will need to limit your search to one of the following: Brochure/Pamphlet, Fact Sheet, or Information Package, and "low blood pressure" using the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For the publication date, select "All Years." Select your preferred language and the format option "Fact Sheet." Type "low blood pressure" (or synonyms) into the "For these words:" box. The following is a sample result:

- **Carnitine in Dialysis**

  Source: in Exceptional Parent. End Stage Renal Disease: A Practical Guide for Physicians, Dietitians, Nurses, Patients, Families, and Caregivers. Englewood Cliffs, NJ: Exceptional Parent. 1999. p. 18-19.

  Contact: Available from Exceptional Parent. P.O. Box 1807, Englewood Cliffs, NJ 07632. (800) 535-1910. Fax (201) 947-9376. E-mail: eplibrary@aol.com. Website: www.eparent.com. PRICE: $5.95.

  Summary: Carnitine is a substance necessary for production of energy. It occurs naturally in foods (meat and dairy products) and also is produced by the body. In certain illnesses, the normal dietary intake of carnitine may not be enough. This article is from a monograph written to soften the blow of receiving the diagnosis of kidney failure by providing patients, caregivers, and their families some practical, easy to read information. The articles are written to be practical enough for patients to use, yet informative enough that professionals can refer to them as well. This article considers the use of carnitine supplementation for patients on dialysis therapy for chronic kidney failure. A person with impaired energy production is easily fatigued, weak, and has poor endurance. The author reports on studies of patients on dialysis who were treated with carnitine supplementation, noting that the results have been mixed. Some researchers report improvement in both muscle structure and function with carnitine supplementation; other studies did not find any significant improvement. The author concludes that carnitine is not necessary for all dialysis patients, but may be of some use for certain conditions, such as muscle weakness and fatigue; weakness of the heart muscle; anemia that does not respond to erythropoietin; and severe muscle cramps or **low blood pressure** experienced during dialysis sessions. Before initiating carnitine supplementation, however, these problems should be thoroughly investigated by a physician, and other more common and well understood treatments should be tried. 1 figure.

- **AIDS - Related Cryptococcal Meningitis**

  Contact: US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Allergy and Infectious Diseases, 31 Center Dr MSC 2520, Bethesda, MD, 20892-2520, (301) 496-5717, http://www.niaid.nih.gov.

  Summary: This report describes cryptococcal meningitis that is related to Acquired immunodeficiency syndrome (AIDS). It says that cryptococcal disease accounts for 5-8 percent of all opportunistic infections, and that it is caused by cryptococcus neoformans, a yeastlike fungus found in soil contaminated with bird excrement. Exposure is quite common, but it only manifests as a disease in those individuals with compromised immune systems. The fungus may infect numerous organs, particularly the skin, lungs, and meninges. As meningitis, it has the following symptoms: Fever, headache, fatigue, nausea, and vomiting. It may also cause changes in behavior or personality, memory loss or confusion, and difficulty with coordination. Unless maintenance therapy continues, the relapse rate after initial treatment is 50-90 percent. Standard treatment consists of Amphotericin B intravenously for 10 weeks, possibly combined with oral flucytosine. Side effects may include kidney damage, high fever, severe chills, **low blood pressure,** a decrease in potassium levels, and depressed levels of red and white blood cells, and platelets. Another drug called fluconazole was recently approved for oral or intravenous use, and one called SCH 39304 is under study. At present, the National Institute of Allergy and Infectious Diseases (NIAID) has four meningitis clinical trials underway.

The NLM Gateway[14]

The NLM (National Library of Medicine) Gateway is a Web-based system that lets users search simultaneously in multiple retrieval systems at the U.S. National Library of Medicine (NLM). It allows users of NLM services to initiate searches from one Web interface, providing one-stop searching for many of NLM's information resources or databases.[15] To use the NLM Gateway, simply go to the search site at **http://gateway.nlm.nih.gov/gw/Cmd**. Type "low blood pressure" (or synonyms) into the search box and click "Search." The results will be presented in a tabular form, indicating the number of references in each database category.

Results Summary

Category	Items Found
Journal Articles	16005
Books / Periodicals / Audio Visual	250
Consumer Health	274
Meeting Abstracts	12
Other Collections	0
Total	16541

[14] Adapted from NLM: **http://gateway.nlm.nih.gov/gw/Cmd?Overview.x**.

[15] The NLM Gateway is currently being developed by the Lister Hill National Center for Biomedical Communications (LHNCBC) at the National Library of Medicine (NLM) of the National Institutes of Health (NIH).

HSTAT[16]

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.[17] These documents include clinical practice guidelines, quick-reference guides for clinicians, consumer health brochures, evidence reports and technology assessments from the Agency for Healthcare Research and Quality (AHRQ), as well as AHRQ's Put Prevention Into Practice.[18] Simply search by "low blood pressure" (or synonyms) at the following Web site: **http://text.nlm.nih.gov**.

Coffee Break: Tutorials for Biologists[19]

Coffee Break is a general healthcare site that takes a scientific view of the news and covers recent breakthroughs in biology that may one day assist physicians in developing treatments. Here you will find a collection of short reports on recent biological discoveries. Each report incorporates interactive tutorials that demonstrate how bioinformatics tools are used as a part of the research process. Currently, all Coffee Breaks are written by NCBI staff.[20] Each report is about 400 words and is usually based on a discovery reported in one or more articles from recently published, peer-reviewed literature.[21] This site has new articles every few weeks, so it can be considered an online magazine of sorts. It is intended for

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[16] Adapted from HSTAT: **http://www.nlm.nih.gov/pubs/factsheets/hstat.html**.

[17] The HSTAT URL is **http://hstat.nlm.nih.gov/**.

[18] Other important documents in HSTAT include: the National Institutes of Health (NIH) Consensus Conference Reports and Technology Assessment Reports; the HIV/AIDS Treatment Information Service (ATIS) resource documents; the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Treatment (SAMHSA/CSAT) Treatment Improvement Protocols (TIP) and Center for Substance Abuse Prevention (SAMHSA/CSAP) Prevention Enhancement Protocols System (PEPS); the Public Health Service (PHS) Preventive Services Task Force's *Guide to Clinical Preventive Services*; the independent, nonfederal Task Force on Community Services' *Guide to Community Preventive Services*; and the Health Technology Advisory Committee (HTAC) of the Minnesota Health Care Commission (MHCC) health technology evaluations.

[19] Adapted from **http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html**.

[20] The figure that accompanies each article is frequently supplied by an expert external to NCBI, in which case the source of the figure is cited. The result is an interactive tutorial that tells a biological story.

[21] After a brief introduction that sets the work described into a broader context, the report focuses on how a molecular understanding can provide explanations of observed biology and lead to therapies for diseases. Each vignette is accompanied by a figure and hypertext links that lead to a series of pages that interactively show how NCBI tools and resources are used in the research process.

general background information. You can access the Coffee Break Web site at the following hyperlink: **http://www.ncbi.nlm.nih.gov/Coffeebreak/**.

Other Commercial Databases

In addition to resources maintained by official agencies, other databases exist that are commercial ventures addressing medical professionals. Here are some examples that may interest you:

- **CliniWeb International:** Index and table of contents to selected clinical information on the Internet; see **http://www.ohsu.edu/cliniweb/**.
- **Medical World Search:** Searches full text from thousands of selected medical sites on the Internet; see **http://www.mwsearch.com/**.

APPENDIX B. PATIENT RESOURCES

Overview

Official agencies, as well as federally funded institutions supported by national grants, frequently publish a variety of guidelines written with the patient in mind. These are typically called "Fact Sheets" or "Guidelines." They can take the form of a brochure, information kit, pamphlet, or flyer. Often they are only a few pages in length. Since new guidelines on low blood pressure can appear at any moment and be published by a number of sources, the best approach to finding guidelines is to systematically scan the Internet-based services that post them.

Patient Guideline Sources

The remainder of this chapter directs you to sources which either publish or can help you find additional guidelines on topics related to low blood pressure. Due to space limitations, these sources are listed in a concise manner. Do not hesitate to consult the following sources by either using the Internet hyperlink provided, or, in cases where the contact information is provided, contacting the publisher or author directly.

The National Institutes of Health

The NIH gateway to patients is located at **http://health.nih.gov/**. From this site, you can search across various sources and institutes, a number of which are summarized below.

Topic Pages: MEDLINEplus

The National Library of Medicine has created a vast and patient-oriented healthcare information portal called MEDLINEplus. Within this Internet-based system are "health topic pages" which list links to available materials relevant to low blood pressure. To access this system, log on to **http://www.nlm.nih.gov/medlineplus/healthtopics.html**. From there you can either search using the alphabetical index or browse by broad topic areas. Recently, MEDLINEplus listed the following when searched for "low blood pressure":

- Other guides

  Diabetes
  http://www.nlm.nih.gov/medlineplus/diabetes.html

  Stroke
  http://www.nlm.nih.gov/medlineplus/stroke.html

Within the health topic page dedicated to low blood pressure, the following was listed:

- General/Overviews

  Blood Pressure
  Source: American Heart Association
  http://www.americanheart.org/presenter.jhtml?identifier=4473

  Low Blood Pressure
  Source: American Heart Association
  http://www.americanheart.org/presenter.jhtml?identifier=4643

- Diagnosis/Symptoms

  Blood Pressure Testing and Measurement
  Source: American Heart Association
  http://www.americanheart.org/presenter.jhtml?identifier=4470

  Tilt-Table Test
  Source: Mayo Foundation for Medical Education and Research
  http://www.mayoclinic.com/invoke.cfm?id=AN00268

- Specific Conditions/Aspects

  Autonomic Nervous System
  Source: American Heart Association
  http://www.americanheart.org/presenter.jhtml?identifier=4463

  Blood Pressure Drops When You Stand Up
  Source: Mayo Foundation for Medical Education and Research
  http://www.mayoclinic.com/invoke.cfm?id=HQ01027

  Orthostatic Hypotension
  Source: National Institute of Neurological Disorders and Stroke
  http://www.ninds.nih.gov/health_and_medical/disorders/orthosta_doc.htm

  Shy-Drager Syndrome
  Source: National Institute of Neurological Disorders and Stroke
  http://www.ninds.nih.gov/health_and_medical/disorders/shydrger_doc.htm

- Organizations

  American Heart Association
  http://www.americanheart.org/presenter.jhtml?identifier=1200000

  National Heart, Lung, and Blood Institute
  http://www.nhlbi.nih.gov/

National Institute of Neurological Disorders and Stroke
http://www.ninds.nih.gov/

- Research

  Effects of Blood Pressure Measurements on Mortality
  Source: American College of Physicians
  http://www.annals.org/cgi/content/full/139/9/I-46

You may also choose to use the search utility provided by MEDLINEplus at the following Web address: **http://www.nlm.nih.gov/medlineplus/**. Simply type a keyword into the search box and click "Search." This utility is similar to the NIH search utility, with the exception that it only includes materials that are linked within the MEDLINEplus system (mostly patient-oriented information). It also has the disadvantage of generating unstructured results. We recommend, therefore, that you use this method only if you have a very targeted search.

The Combined Health Information Database (CHID)

CHID Online is a reference tool that maintains a database directory of thousands of journal articles and patient education guidelines on low blood pressure. CHID offers summaries that describe the guidelines available, including contact information and pricing. CHID's general Web site is **http://chid.nih.gov/**. To search this database, go to **http://chid.nih.gov/detail/detail.html**. In particular, you can use the advanced search options to look up pamphlets, reports, brochures, and information kits. The following was recently posted in this archive:

- **Doctor, What Causes Tinnitus? Insight into Tinnitus, the Noise in Your Ears**

  Source: Alexandria, VA: American Academy of Otolaryngology-Head and Neck Surgery, Inc. 1997. 4 p.

  Contact: Available from American Academy of Otolaryngology-Head and Neck Surgery, Inc. 1 Prince Street, Alexandria, VA 22314-3357. (703) 836-4444. Fax (703) 683-5100. PRICE: Single copy free; bulk orders available.

  Summary: This brochure provides information about tinnitus, noises inside the head and ears that cannot be heard by other people. The brochure describes the many causes of tinnitus, including middle ear infection, eardrum perforation, fluid accumulation, otosclerosis of the middle ear, allergy, high or **low blood pressure,** diabetes, thyroid problems, injury to the head or neck, excessive noise, and drug side effects. The brochure lists seven suggestions to help lessen the severity of tinnitus: avoid exposure to loud sounds and noises; get blood pressure checked; decrease the intake of salt; avoid stimulants such as coffee, tea, cola and tobacco; exercise daily (to improve circulation); get adequate rest; and stop worrying about the noise. The brochure concludes with recommendations to help readers cope with the noise of tinnitus. These recommendations include concentration and relaxation exercises, masking, and the use of hearing aids. The brochure also includes a brief description of the specialty of otolaryngology-head and neck surgery. 2 figures.

- **Just the Facts: The Dialysis Machine**

  Source: Madison, WI: Life Options Rehabilitation Program. 1999. 2 p.

Contact: Available from Life Options Rehabilitation Program. Medical Education Institute, Inc, 414 D'Onofrid Drive., Suite 200, Madison, WI 53719. (608) 833-8033. E-mail: lifeoptions@meiresearch.org. PRICE: Single copy free to health professionals only.

Summary: This fact sheet is part of the Life Options Rehabilitation Program, a patient education service of Amgen, Inc. The Keys to a Long Life materials were developed to motivate patients on dialysis and teach them how to optimize their dialysis care and improve their quality of life. This fact sheet on the dialysis machine is one of six fact sheets providing general information about living well on dialysis. Each fact sheet contains research based information about the topic and why it is important for patients; simple illustrations; and a table of problems, prevention strategies, and questions for patients to ask. Topics covered in this fact sheet include the parts of the hemodialysis machine, how much blood is circulated outside the body during dialysis, the role of the air detector, the blood flow rate, the dialysate concentration or prescription, how to learn about the machinery and the alarms, how to manage feeling cold during dialysis, and how to handle **low blood pressure** and muscle cramps during dialysis. The fact sheet is written in nontechnical language. The 'Keys to a Long Life' materials are based on the real life experiences and advice of long term dialysis patients, as well as on data from a telephone opinion survey of dialysis patients. 1 figure. 1 table.

- **Binswanger's Disease**

  Source: New Fairfield, CT: National Organization for Rare Disorders. 1997. 6p.

  Contact: National Organization for Rare Disorders. PO Box 8923, New Fairfield, CT 06812-8923. (800) 999-NORD; (203) 746-6518; TDD (203) 746-6927; FAX (203) 746-6927. Internet access: http://www.nord-rdb.com/~orphan. PRICE: $7.50.

  Summary: This fact sheet summarizes information on Binswanger's disease (BD), including a brief definition and synonyms for the disease, symptom progression, possible causes, the population affected, standard and investigational therapies, and related disorders. BD is a form of senile dementia usually brought on by deep white-matter lesions in the brain. Symptoms tend to begin after age 60 and include progressive loss of recent memory, difficulty in coping with unusual events, difficulty in walking, and Parkinsonian type tremors and depression. BD affects males more often than females, and the cause is unknown. Therapies include anti-hypertensive drugs to control blood pressure, anti-depressive drugs, and medication for heart arrhythmias and **low blood pressure.** Other treatments are symptomatic and supportive. This fact sheet includes a list of resources on BD is provided.

The NIH Search Utility

The NIH search utility allows you to search for documents on over 100 selected Web sites that comprise the NIH-WEB-SPACE. Each of these servers is “crawled” and indexed on an ongoing basis. Your search will produce a list of various documents, all of which will relate in some way to low blood pressure. The drawbacks of this approach are that the information is not organized by theme and that the references are often a mix of information for professionals and patients. Nevertheless, a large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively rare or specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: **http://search.nih.gov/index.html**.

Additional Web Sources

A number of Web sites are available to the public that often link to government sites. These can also point you in the direction of essential information. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=168&layer=&from=subcats**
- Family Village: **http://www.familyvillage.wisc.edu/specific.htm**
- Google: **http://directory.google.com/Top/Health/Conditions_and_Diseases/**
- Med Help International: **http://www.medhelp.org/HealthTopics/A.html**
- Open Directory Project: **http://dmoz.org/Health/Conditions_and_Diseases/**
- Yahoo.com: **http://dir.yahoo.com/Health/Diseases_and_Conditions/**
- WebMD®Health: **http://my.webmd.com/health_topics**

Finding Associations

There are several Internet directories that provide lists of medical associations with information on or resources relating to low blood pressure. By consulting all of associations listed in this chapter, you will have nearly exhausted all sources for patient associations concerned with low blood pressure.

The National Health Information Center (NHIC)

The National Health Information Center (NHIC) offers a free referral service to help people find organizations that provide information about low blood pressure. For more information, see the NHIC's Web site at **http://www.health.gov/NHIC/** or contact an information specialist by calling 1-800-336-4797.

Directory of Health Organizations

The Directory of Health Organizations, provided by the National Library of Medicine Specialized Information Services, is a comprehensive source of information on associations. The Directory of Health Organizations database can be accessed via the Internet at **http://www.sis.nlm.nih.gov/Dir/DirMain.html**. It is composed of two parts: DIRLINE and Health Hotlines.

The DIRLINE database comprises some 10,000 records of organizations, research centers, and government institutes and associations that primarily focus on health and biomedicine. To access DIRLINE directly, go to the following Web site: **http://dirline.nlm.nih.gov/**. Simply type in "low blood pressure" (or a synonym), and you will receive information on all relevant organizations listed in the database.

Health Hotlines directs you to toll-free numbers to over 300 organizations. You can access this database directly at **http://www.sis.nlm.nih.gov/hotlines/**. On this page, you are given the option to search by keyword or by browsing the subject list. When you have received

your search results, click on the name of the organization for its description and contact information.

The Combined Health Information Database

Another comprehensive source of information on healthcare associations is the Combined Health Information Database. Using the "Detailed Search" option, you will need to limit your search to "Organizations" and "low blood pressure". Type the following hyperlink into your Web browser: **http://chid.nih.gov/detail/detail.html**. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For publication date, select "All Years." Then, select your preferred language and the format option "Organization Resource Sheet." Type "low blood pressure" (or synonyms) into the "For these words:" box. You should check back periodically with this database since it is updated every three months.

The National Organization for Rare Disorders, Inc.

The National Organization for Rare Disorders, Inc. has prepared a Web site that provides, at no charge, lists of associations organized by health topic. You can access this database at the following Web site: **http://www.rarediseases.org/search/orgsearch.html**. Type "low blood pressure" (or a synonym) into the search box, and click "Submit Query."

APPENDIX C. FINDING MEDICAL LIBRARIES

Overview

In this Appendix, we show you how to quickly find a medical library in your area.

Preparation

Your local public library and medical libraries have interlibrary loan programs with the National Library of Medicine (NLM), one of the largest medical collections in the world. According to the NLM, most of the literature in the general and historical collections of the National Library of Medicine is available on interlibrary loan to any library. If you would like to access NLM medical literature, then visit a library in your area that can request the publications for you.[22]

Finding a Local Medical Library

The quickest method to locate medical libraries is to use the Internet-based directory published by the National Network of Libraries of Medicine (NN/LM). This network includes 4626 members and affiliates that provide many services to librarians, health professionals, and the public. To find a library in your area, simply visit **http://nnlm.gov/members/adv.html** or call 1-800-338-7657.

Medical Libraries in the U.S. and Canada

In addition to the NN/LM, the National Library of Medicine (NLM) lists a number of libraries with reference facilities that are open to the public. The following is the NLM's list and includes hyperlinks to each library's Web site. These Web pages can provide information on hours of operation and other restrictions. The list below is a small sample of

[22] Adapted from the NLM: **http://www.nlm.nih.gov/psd/cas/interlibrary.html**.

libraries recommended by the National Library of Medicine (sorted alphabetically by name of the U.S. state or Canadian province where the library is located)[23]:

- **Alabama:** Health InfoNet of Jefferson County (Jefferson County Library Cooperative, Lister Hill Library of the Health Sciences), **http://www.uab.edu/infonet/**
- **Alabama:** Richard M. Scrushy Library (American Sports Medicine Institute)
- **Arizona:** Samaritan Regional Medical Center: The Learning Center (Samaritan Health System, Phoenix, Arizona), **http://www.samaritan.edu/library/bannerlibs.htm**
- **California:** Kris Kelly Health Information Center (St. Joseph Health System, Humboldt), **http://www.humboldt1.com/~kkhic/index.html**
- **California:** Community Health Library of Los Gatos, **http://www.healthlib.org/orgresources.html**
- **California:** Consumer Health Program and Services (CHIPS) (County of Los Angeles Public Library, Los Angeles County Harbor-UCLA Medical Center Library) - Carson, CA, **http://www.colapublib.org/services/chips.html**
- **California:** Gateway Health Library (Sutter Gould Medical Foundation)
- **California:** Health Library (Stanford University Medical Center), **http://www-med.stanford.edu/healthlibrary/**
- **California:** Patient Education Resource Center - Health Information and Resources (University of California, San Francisco), **http://sfghdean.ucsf.edu/barnett/PERC/default.asp**
- **California:** Redwood Health Library (Petaluma Health Care District), **http://www.phcd.org/rdwdlib.html**
- **California:** Los Gatos PlaneTree Health Library, **http://planetreesanjose.org/**
- **California:** Sutter Resource Library (Sutter Hospitals Foundation, Sacramento), **http://suttermedicalcenter.org/library/**
- **California:** Health Sciences Libraries (University of California, Davis), **http://www.lib.ucdavis.edu/healthsci/**
- **California:** ValleyCare Health Library & Ryan Comer Cancer Resource Center (ValleyCare Health System, Pleasanton), **http://gaelnet.stmarys-ca.edu/other.libs/gbal/east/vchl.html**
- **California:** Washington Community Health Resource Library (Fremont), **http://www.healthlibrary.org/**
- **Colorado:** William V. Gervasini Memorial Library (Exempla Healthcare), **http://www.saintjosephdenver.org/yourhealth/libraries/**
- **Connecticut:** Hartford Hospital Health Science Libraries (Hartford Hospital), **http://www.harthosp.org/library/**
- **Connecticut:** Healthnet: Connecticut Consumer Health Information Center (University of Connecticut Health Center, Lyman Maynard Stowe Library), **http://library.uchc.edu/departm/hnet/**

[23] Abstracted from **http://www.nlm.nih.gov/medlineplus/libraries.html**.

- **Connecticut:** Waterbury Hospital Health Center Library (Waterbury Hospital, Waterbury), **http://www.waterburyhospital.com/library/consumer.shtml**
- **Delaware:** Consumer Health Library (Christiana Care Health System, Eugene du Pont Preventive Medicine & Rehabilitation Institute, Wilmington), **http://www.christianacare.org/health_guide/health_guide_pmri_health_info.cfm**
- **Delaware:** Lewis B. Flinn Library (Delaware Academy of Medicine, Wilmington), **http://www.delamed.org/chls.html**
- **Georgia:** Family Resource Library (Medical College of Georgia, Augusta), **http://cmc.mcg.edu/kids_families/fam_resources/fam_res_lib/frl.htm**
- **Georgia:** Health Resource Center (Medical Center of Central Georgia, Macon), **http://www.mccg.org/hrc/hrchome.asp**
- **Hawaii:** Hawaii Medical Library: Consumer Health Information Service (Hawaii Medical Library, Honolulu), **http://hml.org/CHIS/**
- **Idaho:** DeArmond Consumer Health Library (Kootenai Medical Center, Coeur d'Alene), **http://www.nicon.org/DeArmond/index.htm**
- **Illinois:** Health Learning Center of Northwestern Memorial Hospital (Chicago), **http://www.nmh.org/health_info/hlc.html**
- **Illinois:** Medical Library (OSF Saint Francis Medical Center, Peoria), **http://www.osfsaintfrancis.org/general/library/**
- **Kentucky:** Medical Library - Services for Patients, Families, Students & the Public (Central Baptist Hospital, Lexington), **http://www.centralbap.com/education/community/library.cfm**
- **Kentucky:** University of Kentucky - Health Information Library (Chandler Medical Center, Lexington), **http://www.mc.uky.edu/PatientEd/**
- **Louisiana:** Alton Ochsner Medical Foundation Library (Alton Ochsner Medical Foundation, New Orleans), **http://www.ochsner.org/library/**
- **Louisiana:** Louisiana State University Health Sciences Center Medical Library-Shreveport, **http://lib-sh.lsuhsc.edu/**
- **Maine:** Franklin Memorial Hospital Medical Library (Franklin Memorial Hospital, Farmington), **http://www.fchn.org/fmh/lib.htm**
- **Maine:** Gerrish-True Health Sciences Library (Central Maine Medical Center, Lewiston), **http://www.cmmc.org/library/library.html**
- **Maine:** Hadley Parrot Health Science Library (Eastern Maine Healthcare, Bangor), **http://www.emh.org/hll/hpl/guide.htm**
- **Maine:** Maine Medical Center Library (Maine Medical Center, Portland), **http://www.mmc.org/library/**
- **Maine:** Parkview Hospital (Brunswick), **http://www.parkviewhospital.org/**
- **Maine:** Southern Maine Medical Center Health Sciences Library (Southern Maine Medical Center, Biddeford), **http://www.smmc.org/services/service.php3?choice=10**
- **Maine:** Stephens Memorial Hospital's Health Information Library (Western Maine Health, Norway), **http://www.wmhcc.org/Library/**

- **Manitoba, Canada:** Consumer & Patient Health Information Service (University of Manitoba Libraries), **http://www.umanitoba.ca/libraries/units/health/reference/chis.html**
- **Manitoba, Canada:** J.W. Crane Memorial Library (Deer Lodge Centre, Winnipeg), **http://www.deerlodge.mb.ca/crane_library/about.asp**
- **Maryland:** Health Information Center at the Wheaton Regional Library (Montgomery County, Dept. of Public Libraries, Wheaton Regional Library), **http://www.mont.lib.md.us/healthinfo/hic.asp**
- **Massachusetts:** Baystate Medical Center Library (Baystate Health System), **http://www.baystatehealth.com/1024/**
- **Massachusetts:** Boston University Medical Center Alumni Medical Library (Boston University Medical Center), **http://med-libwww.bu.edu/library/lib.html**
- **Massachusetts:** Lowell General Hospital Health Sciences Library (Lowell General Hospital, Lowell), **http://www.lowellgeneral.org/library/HomePageLinks/WWW.htm**
- **Massachusetts:** Paul E. Woodard Health Sciences Library (New England Baptist Hospital, Boston), **http://www.nebh.org/health_lib.asp**
- **Massachusetts:** St. Luke's Hospital Health Sciences Library (St. Luke's Hospital, Southcoast Health System, New Bedford), **http://www.southcoast.org/library/**
- **Massachusetts:** Treadwell Library Consumer Health Reference Center (Massachusetts General Hospital), **http://www.mgh.harvard.edu/library/chrcindex.html**
- **Massachusetts:** UMass HealthNet (University of Massachusetts Medical School, Worchester), **http://healthnet.umassmed.edu/**
- **Michigan:** Botsford General Hospital Library - Consumer Health (Botsford General Hospital, Library & Internet Services), **http://www.botsfordlibrary.org/consumer.htm**
- **Michigan:** Helen DeRoy Medical Library (Providence Hospital and Medical Centers), **http://www.providence-hospital.org/library/**
- **Michigan:** Marquette General Hospital - Consumer Health Library (Marquette General Hospital, Health Information Center), **http://www.mgh.org/center.html**
- **Michigan:** Patient Education Resouce Center - University of Michigan Cancer Center (University of Michigan Comprehensive Cancer Center, Ann Arbor), **http://www.cancer.med.umich.edu/learn/leares.htm**
- **Michigan:** Sladen Library & Center for Health Information Resources - Consumer Health Information (Detroit), **http://www.henryford.com/body.cfm?id=39330**
- **Montana:** Center for Health Information (St. Patrick Hospital and Health Sciences Center, Missoula)
- **National:** Consumer Health Library Directory (Medical Library Association, Consumer and Patient Health Information Section), **http://caphis.mlanet.org/directory/index.html**
- **National:** National Network of Libraries of Medicine (National Library of Medicine) - provides library services for health professionals in the United States who do not have access to a medical library, **http://nnlm.gov/**
- **National:** NN/LM List of Libraries Serving the Public (National Network of Libraries of Medicine), **http://nnlm.gov/members/**

- **Nevada:** Health Science Library, West Charleston Library (Las Vegas-Clark County Library District, Las Vegas), **http://www.lvccld.org/special_collections/medical/index.htm**
- **New Hampshire:** Dartmouth Biomedical Libraries (Dartmouth College Library, Hanover), **http://www.dartmouth.edu/~biomed/resources.htmld/conshealth.htmld/**
- **New Jersey:** Consumer Health Library (Rahway Hospital, Rahway), **http://www.rahwayhospital.com/library.htm**
- **New Jersey:** Dr. Walter Phillips Health Sciences Library (Englewood Hospital and Medical Center, Englewood), **http://www.englewoodhospital.com/links/index.htm**
- **New Jersey:** Meland Foundation (Englewood Hospital and Medical Center, Englewood), **http://www.geocities.com/ResearchTriangle/9360/**
- **New York:** Choices in Health Information (New York Public Library) - NLM Consumer Pilot Project participant, **http://www.nypl.org/branch/health/links.html**
- **New York:** Health Information Center (Upstate Medical University, State University of New York, Syracuse), **http://www.upstate.edu/library/hic/**
- **New York:** Health Sciences Library (Long Island Jewish Medical Center, New Hyde Park), **http://www.lij.edu/library/library.html**
- **New York:** ViaHealth Medical Library (Rochester General Hospital), **http://www.nyam.org/library/**
- **Ohio:** Consumer Health Library (Akron General Medical Center, Medical & Consumer Health Library), **http://www.akrongeneral.org/hwlibrary.htm**
- **Oklahoma:** The Health Information Center at Saint Francis Hospital (Saint Francis Health System, Tulsa), **http://www.sfh-tulsa.com/services/healthinfo.asp**
- **Oregon:** Planetree Health Resource Center (Mid-Columbia Medical Center, The Dalles), **http://www.mcmc.net/phrc/**
- **Pennsylvania:** Community Health Information Library (Milton S. Hershey Medical Center, Hershey), **http://www.hmc.psu.edu/commhealth/**
- **Pennsylvania:** Community Health Resource Library (Geisinger Medical Center, Danville), **http://www.geisinger.edu/education/commlib.shtml**
- **Pennsylvania:** HealthInfo Library (Moses Taylor Hospital, Scranton), **http://www.mth.org/healthwellness.html**
- **Pennsylvania:** Hopwood Library (University of Pittsburgh, Health Sciences Library System, Pittsburgh), **http://www.hsls.pitt.edu/guides/chi/hopwood/index_html**
- **Pennsylvania:** Koop Community Health Information Center (College of Physicians of Philadelphia), **http://www.collphyphil.org/kooppg1.shtml**
- **Pennsylvania:** Learning Resources Center - Medical Library (Susquehanna Health System, Williamsport), **http://www.shscares.org/services/lrc/index.asp**
- **Pennsylvania:** Medical Library (UPMC Health System, Pittsburgh), **http://www.upmc.edu/passavant/library.htm**
- **Quebec, Canada:** Medical Library (Montreal General Hospital), **http://www.mghlib.mcgill.ca/**

- **South Dakota:** Rapid City Regional Hospital Medical Library (Rapid City Regional Hospital), **http://www.rcrh.org/Services/Library/Default.asp**
- **Texas:** Houston HealthWays (Houston Academy of Medicine-Texas Medical Center Library), **http://hhw.library.tmc.edu/**
- **Washington:** Community Health Library (Kittitas Valley Community Hospital), **http://www.kvch.com/**
- **Washington:** Southwest Washington Medical Center Library (Southwest Washington Medical Center, Vancouver), **http://www.swmedicalcenter.com/body.cfm?id=72**

ONLINE GLOSSARIES

The Internet provides access to a number of free-to-use medical dictionaries. The National Library of Medicine has compiled the following list of online dictionaries:

- ADAM Medical Encyclopedia (A.D.A.M., Inc.), comprehensive medical reference: **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**
- MedicineNet.com Medical Dictionary (MedicineNet, Inc.): **http://www.medterms.com/Script/Main/hp.asp**
- Merriam-Webster Medical Dictionary (Inteli-Health, Inc.): **http://www.intelihealth.com/IH/**
- Multilingual Glossary of Technical and Popular Medical Terms in Eight European Languages (European Commission) - Danish, Dutch, English, French, German, Italian, Portuguese, and Spanish: **http://allserv.rug.ac.be/~rvdstich/eugloss/welcome.html**
- On-line Medical Dictionary (CancerWEB): **http://cancerweb.ncl.ac.uk/omd/**
- Rare Diseases Terms (Office of Rare Diseases): **http://ord.aspensys.com/asp/diseases/diseases.asp**
- Technology Glossary (National Library of Medicine) - Health Care Technology: **http://www.nlm.nih.gov/nichsr/ta101/ta10108.htm**

Beyond these, MEDLINEplus contains a very patient-friendly encyclopedia covering every aspect of medicine (licensed from A.D.A.M., Inc.). The ADAM Medical Encyclopedia can be accessed at **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**. ADAM is also available on commercial Web sites such as drkoop.com (**http://www.drkoop.com/**) and Web MD (**http://my.webmd.com/adam/asset/adam_disease_articles/a_to_z/a**).

Online Dictionary Directories

The following are additional online directories compiled by the National Library of Medicine, including a number of specialized medical dictionaries:

- Medical Dictionaries: Medical & Biological (World Health Organization): **http://www.who.int/hlt/virtuallibrary/English/diction.htm#Medical**
- MEL-Michigan Electronic Library List of Online Health and Medical Dictionaries (Michigan Electronic Library): **http://mel.lib.mi.us/health/health-dictionaries.html**
- Patient Education: Glossaries (DMOZ Open Directory Project): **http://dmoz.org/Health/Education/Patient_Education/Glossaries/**
- Web of Online Dictionaries (Bucknell University): **http://www.yourdictionary.com/diction5.html#medicine**

LOW BLOOD PRESSURE DICTIONARY

The definitions below are derived from official public sources, including the National Institutes of Health [NIH] and the European Union [EU].

Abdominal: Having to do with the abdomen, which is the part of the body between the chest and the hips that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs. [NIH]

Abdominal Pain: Sensation of discomfort, distress, or agony in the abdominal region. [NIH]

Abscess: Accumulation of purulent material in tissues, organs, or circumscribed spaces, usually associated with signs of infection. [NIH]

Acetylcholine: A neurotransmitter. Acetylcholine in vertebrates is the major transmitter at neuromuscular junctions, autonomic ganglia, parasympathetic effector junctions, a subset of sympathetic effector junctions, and at many sites in the central nervous system. It is generally not used as an administered drug because it is broken down very rapidly by cholinesterases, but it is useful in some ophthalmological applications. [NIH]

Adenine: A purine base and a fundamental unit of adenine nucleotides. [NIH]

Adenosine: A nucleoside that is composed of adenine and d-ribose. Adenosine or adenosine derivatives play many important biological roles in addition to being components of DNA and RNA. Adenosine itself is a neurotransmitter. [NIH]

Adipocytes: Fat-storing cells found mostly in the abdominal cavity and subcutaneous tissue. Fat is usually stored in the form of tryglycerides. [NIH]

Adrenal Cortex: The outer layer of the adrenal gland. It secretes mineralocorticoids, androgens, and glucocorticoids. [NIH]

Adrenal Glands: Paired glands situated in the retroperitoneal tissues at the superior pole of each kidney. [NIH]

Adrenal insufficiency: The reduced secretion of adrenal glands. [NIH]

Adrenal Medulla: The inner part of the adrenal gland; it synthesizes, stores and releases catecholamines. [NIH]

Adrenaline: A hormone. Also called epinephrine. [NIH]

Adrenergic: Activated by, characteristic of, or secreting epinephrine or substances with similar activity; the term is applied to those nerve fibres that liberate norepinephrine at a synapse when a nerve impulse passes, i.e., the sympathetic fibres. [EU]

Adrenergic Agonists: Drugs that bind to and activate adrenergic receptors. [NIH]

Adrenergic beta-Antagonists: Drugs that bind to but do not activate beta-adrenergic receptors thereby blocking the actions of beta-adrenergic agonists. Adrenergic beta-antagonists are used for treatment of hypertension, cardiac arrythmias, angina pectoris, glaucoma, migraine headaches, and anxiety. [NIH]

Adverse Effect: An unwanted side effect of treatment. [NIH]

Afferent: Concerned with the transmission of neural impulse toward the central part of the nervous system. [NIH]

Affinity: 1. Inherent likeness or relationship. 2. A special attraction for a specific element, organ, or structure. 3. Chemical affinity; the force that binds atoms in molecules; the tendency of substances to combine by chemical reaction. 4. The strength of noncovalent

chemical binding between two substances as measured by the dissociation constant of the complex. 5. In immunology, a thermodynamic expression of the strength of interaction between a single antigen-binding site and a single antigenic determinant (and thus of the stereochemical compatibility between them), most accurately applied to interactions among simple, uniform antigenic determinants such as haptens. Expressed as the association constant (K litres mole -1), which, owing to the heterogeneity of affinities in a population of antibody molecules of a given specificity, actually represents an average value (mean intrinsic association constant). 6. The reciprocal of the dissociation constant. [EU]

Age of Onset: The age or period of life at which a disease or the initial symptoms or manifestations of a disease appear in an individual. [NIH]

Agonist: In anatomy, a prime mover. In pharmacology, a drug that has affinity for and stimulates physiologic activity at cell receptors normally stimulated by naturally occurring substances. [EU]

Air Embolism: Occurs when the lungs over expand to the point that air bubbles are forced through the air sacs of the lungs into the circulatory system. [NIH]

Air Sacs: Thin-walled sacs or spaces which function as a part of the respiratory system in birds, fishes, insects, and mammals. [NIH]

Airway: A device for securing unobstructed passage of air into and out of the lungs during general anesthesia. [NIH]

Airway Obstruction: Any hindrance to the passage of air into and out of the lungs. [NIH]

Albumin: 1. Any protein that is soluble in water and moderately concentrated salt solutions and is coagulable by heat. 2. Serum albumin; the major plasma protein (approximately 60 per cent of the total), which is responsible for much of the plasma colloidal osmotic pressure and serves as a transport protein carrying large organic anions, such as fatty acids, bilirubin, and many drugs, and also carrying certain hormones, such as cortisol and thyroxine, when their specific binding globulins are saturated. Albumin is synthesized in the liver. Low serum levels occur in protein malnutrition, active inflammation and serious hepatic and renal disease. [EU]

Aldosterone: (11 beta)-11,21-Dihydroxy-3,20-dioxopregn-4-en-18-al. A hormone secreted by the adrenal cortex that functions in the regulation of electrolyte and water balance by increasing the renal retention of sodium and the excretion of potassium. [NIH]

Algorithms: A procedure consisting of a sequence of algebraic formulas and/or logical steps to calculate or determine a given task. [NIH]

Alimentary: Pertaining to food or nutritive material, or to the organs of digestion. [EU]

Alkaline: Having the reactions of an alkali. [EU]

Alleles: Mutually exclusive forms of the same gene, occupying the same locus on homologous chromosomes, and governing the same biochemical and developmental process. [NIH]

Alpha-1: A protein with the property of inactivating proteolytic enzymes such as leucocyte collagenase and elastase. [NIH]

Alprostadil: A potent vasodilator agent that increases peripheral blood flow. It inhibits platelet aggregation and has many other biological effects such as bronchodilation, mediation of inflammation, etc. [NIH]

Alternative medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used instead of standard treatments. Alternative medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy,

magnet therapy, spiritual healing, and meditation. [NIH]

Amenorrhea: Absence of menstruation. [NIH]

Amine: An organic compound containing nitrogen; any member of a group of chemical compounds formed from ammonia by replacement of one or more of the hydrogen atoms by organic (hydrocarbon) radicals. The amines are distinguished as primary, secondary, and tertiary, according to whether one, two, or three hydrogen atoms are replaced. The amines include allylamine, amylamine, ethylamine, methylamine, phenylamine, propylamine, and many other compounds. [EU]

Amino Acid Sequence: The order of amino acids as they occur in a polypeptide chain. This is referred to as the primary structure of proteins. It is of fundamental importance in determining protein conformation. [NIH]

Amino Acids: Organic compounds that generally contain an amino (-NH2) and a carboxyl (-COOH) group. Twenty alpha-amino acids are the subunits which are polymerized to form proteins. [NIH]

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Ammonia: A colorless alkaline gas. It is formed in the body during decomposition of organic materials during a large number of metabolically important reactions. [NIH]

Amyloid: A general term for a variety of different proteins that accumulate as extracellular fibrils of 7-10 nm and have common structural features, including a beta-pleated sheet conformation and the ability to bind such dyes as Congo red and thioflavine (Kandel, Schwartz, and Jessel, Principles of Neural Science, 3rd ed). [NIH]

Amyloidosis: A group of diseases in which protein is deposited in specific organs (localized amyloidosis) or throughout the body (systemic amyloidosis). Amyloidosis may be either primary (with no known cause) or secondary (caused by another disease, including some types of cancer). Generally, primary amyloidosis affects the nerves, skin, tongue, joints, heart, and liver; secondary amyloidosis often affects the spleen, kidneys, liver, and adrenal glands. [NIH]

Anaesthesia: Loss of feeling or sensation. Although the term is used for loss of tactile sensibility, or of any of the other senses, it is applied especially to loss of the sensation of pain, as it is induced to permit performance of surgery or other painful procedures. [EU]

Analog: In chemistry, a substance that is similar, but not identical, to another. [NIH]

Anaphylactic: Pertaining to anaphylaxis. [EU]

Anaphylatoxins: The family of peptides C3a, C4a, C5a, and C5a des-arginine produced in the serum during complement activation. They produce smooth muscle contraction, mast cell histamine release, affect platelet aggregation, and act as mediators of the local inflammatory process. The order of anaphylatoxin activity from strongest to weakest is C5a, C3a, C4a, and C5a des-arginine. The latter is the so-called "classical" anaphylatoxin but shows no spasmogenic activity though it contains some chemotactic ability. [NIH]

Anatomical: Pertaining to anatomy, or to the structure of the organism. [EU]

Anemia: A reduction in the number of circulating erythrocytes or in the quantity of hemoglobin. [NIH]

Anesthesia: A state characterized by loss of feeling or sensation. This depression of nerve function is usually the result of pharmacologic action and is induced to allow performance of surgery or other painful procedures. [NIH]

Angina: Chest pain that originates in the heart. [NIH]

Angina Pectoris: The symptom of paroxysmal pain consequent to myocardial ischemia usually of distinctive character, location and radiation, and provoked by a transient stressful situation during which the oxygen requirements of the myocardium exceed the capacity of the coronary circulation to supply it. [NIH]

Angiography: Radiography of blood vessels after injection of a contrast medium. [NIH]

Angioplasty: Endovascular reconstruction of an artery, which may include the removal of atheromatous plaque and/or the endothelial lining as well as simple dilatation. These are procedures performed by catheterization. When reconstruction of an artery is performed surgically, it is called endarterectomy. [NIH]

Angiotensin-Converting Enzyme Inhibitors: A class of drugs whose main indications are the treatment of hypertension and heart failure. They exert their hemodynamic effect mainly by inhibiting the renin-angiotensin system. They also modulate sympathetic nervous system activity and increase prostaglandin synthesis. They cause mainly vasodilation and mild natriuresis without affecting heart rate and contractility. [NIH]

Angiotensinogen: An alpha-globulin of which a fragment of 14 amino acids is converted by renin to angiotensin I, the inactive precursor of angiotensin II. It is a member of the serpin superfamily. [NIH]

Animal model: An animal with a disease either the same as or like a disease in humans. Animal models are used to study the development and progression of diseases and to test new treatments before they are given to humans. Animals with transplanted human cancers or other tissues are called xenograft models. [NIH]

Anions: Negatively charged atoms, radicals or groups of atoms which travel to the anode or positive pole during electrolysis. [NIH]

Anorexia: Lack or loss of appetite for food. Appetite is psychologic, dependent on memory and associations. Anorexia can be brought about by unattractive food, surroundings, or company. [NIH]

Anorexia Nervosa: The chief symptoms are inability to eat, weight loss, and amenorrhea. [NIH]

Antibiotic: A drug used to treat infections caused by bacteria and other microorganisms. [NIH]

Antibodies: Immunoglobulin molecules having a specific amino acid sequence by virtue of which they interact only with the antigen that induced their synthesis in cells of the lymphoid series (especially plasma cells), or with an antigen closely related to it. [NIH]

Antibody: A type of protein made by certain white blood cells in response to a foreign substance (antigen). Each antibody can bind to only a specific antigen. The purpose of this binding is to help destroy the antigen. Antibodies can work in several ways, depending on the nature of the antigen. Some antibodies destroy antigens directly. Others make it easier for white blood cells to destroy the antigen. [NIH]

Antifungal: Destructive to fungi, or suppressing their reproduction or growth; effective against fungal infections. [EU]

Antigen: Any substance which is capable, under appropriate conditions, of inducing a specific immune response and of reacting with the products of that response, that is, with specific antibody or specifically sensitized T-lymphocytes, or both. Antigens may be soluble substances, such as toxins and foreign proteins, or particulate, such as bacteria and tissue cells; however, only the portion of the protein or polysaccharide molecule known as the antigenic determinant (q.v.) combines with antibody or a specific receptor on a lymphocyte. Abbreviated Ag. [EU]

Antigen-Antibody Complex: The complex formed by the binding of antigen and antibody molecules. The deposition of large antigen-antibody complexes leading to tissue damage causes immune complex diseases. [NIH]

Antihypertensive: An agent that reduces high blood pressure. [EU]

Antihypertensive Agents: Drugs used in the treatment of acute or chronic hypertension regardless of pharmacological mechanism. Among the antihypertensive agents are diuretics (especially diuretics, thiazide), adrenergic beta-antagonists, adrenergic alpha-antagonists, angiotensin-converting enzyme inhibitors, calcium channel blockers, ganglionic blockers, and vasodilator agents. [NIH]

Anti-infective: An agent that so acts. [EU]

Antineoplastic: Inhibiting or preventing the development of neoplasms, checking the maturation and proliferation of malignant cells. [EU]

Antipruritic: Relieving or preventing itching. [EU]

Antiviral: Destroying viruses or suppressing their replication. [EU]

Anuria: Inability to form or excrete urine. [NIH]

Aorta: The main trunk of the systemic arteries. [NIH]

Apathy: Lack of feeling or emotion; indifference. [EU]

Apnea: A transient absence of spontaneous respiration. [NIH]

Arachidonic Acid: An unsaturated, essential fatty acid. It is found in animal and human fat as well as in the liver, brain, and glandular organs, and is a constituent of animal phosphatides. It is formed by the synthesis from dietary linoleic acid and is a precursor in the biosynthesis of prostaglandins, thromboxanes, and leukotrienes. [NIH]

Arginase: A ureahydrolase that catalyzes the hydrolysis of arginine or canavanine to yield L-ORNITHINE and urea. Deficiency of this enzyme causes hyperargininemia. EC 3.5.3.1. [NIH]

Arginine: An essential amino acid that is physiologically active in the L-form. [NIH]

Aromatic: Having a spicy odour. [EU]

Arrhythmia: Any variation from the normal rhythm or rate of the heart beat. [NIH]

Arterial: Pertaining to an artery or to the arteries. [EU]

Arteries: The vessels carrying blood away from the heart. [NIH]

Arteriolar: Pertaining to or resembling arterioles. [EU]

Arterioles: The smallest divisions of the arteries located between the muscular arteries and the capillaries. [NIH]

Articulation: The relationship of two bodies by means of a moveable joint. [NIH]

Ascites: Accumulation or retention of free fluid within the peritoneal cavity. [NIH]

Astringents: Agents, usually topical, that cause the contraction of tissues for the control of bleeding or secretions. [NIH]

Astrocytes: The largest and most numerous neuroglial cells in the brain and spinal cord. Astrocytes (from "star" cells) are irregularly shaped with many long processes, including those with "end feet" which form the glial (limiting) membrane and directly and indirectly contribute to the blood brain barrier. They regulate the extracellular ionic and chemical environment, and "reactive astrocytes" (along with microglia) respond to injury. Astrocytes have high- affinity transmitter uptake systems, voltage-dependent and transmitter-gated ion channels, and can release transmitter, but their role in signaling (as in many other functions)

is not well understood. [NIH]

Asymptomatic: Having no signs or symptoms of disease. [NIH]

Atrial: Pertaining to an atrium. [EU]

Atrial Fibrillation: Disorder of cardiac rhythm characterized by rapid, irregular atrial impulses and ineffective atrial contractions. [NIH]

Atrial Natriuretic Factor: A potent natriuretic and vasodilatory peptide or mixture of different-sized low molecular weight peptides derived from a common precursor and secreted by the heart atria. All these peptides share a sequence of about 20 amino acids. [NIH]

Atrium: A chamber; used in anatomical nomenclature to designate a chamber affording entrance to another structure or organ. Usually used alone to designate an atrium of the heart. [EU]

Atrophy: Decrease in the size of a cell, tissue, organ, or multiple organs, associated with a variety of pathological conditions such as abnormal cellular changes, ischemia, malnutrition, or hormonal changes. [NIH]

Attenuation: Reduction of transmitted sound energy or its electrical equivalent. [NIH]

Auditory: Pertaining to the sense of hearing. [EU]

Autonomic: Self-controlling; functionally independent. [EU]

Autonomic Nervous System: The enteric, parasympathetic, and sympathetic nervous systems taken together. Generally speaking, the autonomic nervous system regulates the internal environment during both peaceful activity and physical or emotional stress. Autonomic activity is controlled and integrated by the central nervous system, especially the hypothalamus and the solitary nucleus, which receive information relayed from visceral afferents; these and related central and sensory structures are sometimes (but not here) considered to be part of the autonomic nervous system itself. [NIH]

Autonomic Neuropathy: A disease of the nerves affecting mostly the internal organs such as the bladder muscles, the cardiovascular system, the digestive tract, and the genital organs. These nerves are not under a person's conscious control and function automatically. Also called visceral neuropathy. [NIH]

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccal, rodlike or bacillary, and spiral or spirochetal. [NIH]

Bactericidal: Substance lethal to bacteria; substance capable of killing bacteria. [NIH]

Base: In chemistry, the nonacid part of a salt; a substance that combines with acids to form salts; a substance that dissociates to give hydroxide ions in aqueous solutions; a substance whose molecule or ion can combine with a proton (hydrogen ion); a substance capable of donating a pair of electrons (to an acid) for the formation of a coordinate covalent bond. [EU]

Basophils: Granular leukocytes characterized by a relatively pale-staining, lobate nucleus and cytoplasm containing coarse dark-staining granules of variable size and stainable by basic dyes. [NIH]

Bed Rest: Confinement of an individual to bed for therapeutic or experimental reasons. [NIH]

Benign: Not cancerous; does not invade nearby tissue or spread to other parts of the body. [NIH]

Benign prostatic hyperplasia: A benign (noncancerous) condition in which an overgrowth of prostate tissue pushes against the urethra and the bladder, blocking the flow of urine. Also called benign prostatic hypertrophy or BPH. [NIH]

Beta-pleated: Particular three-dimensional pattern of amyloidoses. [NIH]

Bewilderment: Impairment or loss of will power. [NIH]

Bile: An emulsifying agent produced in the liver and secreted into the duodenum. Its composition includes bile acids and salts, cholesterol, and electrolytes. It aids digestion of fats in the duodenum. [NIH]

Bile Pigments: Pigments that give a characteristic color to bile including: bilirubin, biliverdine, and bilicyanin. [NIH]

Bilirubin: A bile pigment that is a degradation product of heme. [NIH]

Biochemical: Relating to biochemistry; characterized by, produced by, or involving chemical reactions in living organisms. [EU]

Biological response modifier: BRM. A substance that stimulates the body's response to infection and disease. [NIH]

Biological Transport: The movement of materials (including biochemical substances and drugs) across cell membranes and epithelial layers, usually by passive diffusion. [NIH]

Biopsy: Removal and pathologic examination of specimens in the form of small pieces of tissue from the living body. [NIH]

Biosynthesis: The building up of a chemical compound in the physiologic processes of a living organism. [EU]

Biotechnology: Body of knowledge related to the use of organisms, cells or cell-derived constituents for the purpose of developing products which are technically, scientifically and clinically useful. Alteration of biologic function at the molecular level (i.e., genetic engineering) is a central focus; laboratory methods used include transfection and cloning technologies, sequence and structure analysis algorithms, computer databases, and gene and protein structure function analysis and prediction. [NIH]

Biotransformation: The chemical alteration of an exogenous substance by or in a biological system. The alteration may inactivate the compound or it may result in the production of an active metabolite of an inactive parent compound. The alteration may be either non-synthetic (oxidation-reduction, hydrolysis) or synthetic (glucuronide formation, sulfate conjugation, acetylation, methylation). This also includes metabolic detoxication and clearance. [NIH]

Bladder: The organ that stores urine. [NIH]

Bloating: Fullness or swelling in the abdomen that often occurs after meals. [NIH]

Blood Cell Count: A count of the number of leukocytes and erythrocytes per unit volume in a sample of venous blood. A complete blood count (CBC) also includes measurement of the hemoglobin, hematocrit, and erythrocyte indices. [NIH]

Blood Coagulation: The process of the interaction of blood coagulation factors that results in an insoluble fibrin clot. [NIH]

Blood Glucose: Glucose in blood. [NIH]

Blood Platelets: Non-nucleated disk-shaped cells formed in the megakaryocyte and found in the blood of all mammals. They are mainly involved in blood coagulation. [NIH]

Blood pressure: The pressure of blood against the walls of a blood vessel or heart chamber. Unless there is reference to another location, such as the pulmonary artery or one of the heart chambers, it refers to the pressure in the systemic arteries, as measured, for example, in the forearm. [NIH]

Blood transfusion: The administration of blood or blood products into a blood vessel. [NIH]

Blood vessel: A tube in the body through which blood circulates. Blood vessels include a network of arteries, arterioles, capillaries, venules, and veins. [NIH]

Blood Volume: Volume of circulating blood. It is the sum of the plasma volume and erythrocyte volume. [NIH]

Body Fluids: Liquid components of living organisms. [NIH]

Bone Marrow: The soft tissue filling the cavities of bones. Bone marrow exists in two types, yellow and red. Yellow marrow is found in the large cavities of large bones and consists mostly of fat cells and a few primitive blood cells. Red marrow is a hematopoietic tissue and is the site of production of erythrocytes and granular leukocytes. Bone marrow is made up of a framework of connective tissue containing branching fibers with the frame being filled with marrow cells. [NIH]

Bowel: The long tube-shaped organ in the abdomen that completes the process of digestion. There is both a small and a large bowel. Also called the intestine. [NIH]

Bowel Movement: Body wastes passed through the rectum and anus. [NIH]

Bradycardia: Excessive slowness in the action of the heart, usually with a heart rate below 60 beats per minute. [NIH]

Bradykinin: A nonapeptide messenger that is enzymatically produced from kallidin in the blood where it is a potent but short-lived agent of arteriolar dilation and increased capillary permeability. Bradykinin is also released from mast cells during asthma attacks, from gut walls as a gastrointestinal vasodilator, from damaged tissues as a pain signal, and may be a neurotransmitter. [NIH]

Branch: Most commonly used for branches of nerves, but applied also to other structures. [NIH]

Breakdown: A physical, metal, or nervous collapse. [NIH]

Breeding: The science or art of changing the constitution of a population of plants or animals through sexual reproduction. [NIH]

Bromine: A halogen with the atomic symbol Br, atomic number 36, and atomic weight 79.904. It is a volatile reddish-brown liquid that gives off suffocating vapors, is corrosive to the skin, and may cause severe gastroenteritis if ingested. [NIH]

Bronchi: The larger air passages of the lungs arising from the terminal bifurcation of the trachea. [NIH]

Bronchial: Pertaining to one or more bronchi. [EU]

Bronchoconstriction: Diminution of the caliber of a bronchus physiologically or as a result of pharmacological intervention. [NIH]

Bronchospasm: Spasmodic contraction of the smooth muscle of the bronchi, as occurs in asthma. [EU]

Calcium: A basic element found in nearly all organized tissues. It is a member of the alkaline earth family of metals with the atomic symbol Ca, atomic number 20, and atomic weight 40. Calcium is the most abundant mineral in the body and combines with phosphorus to form calcium phosphate in the bones and teeth. It is essential for the normal functioning of nerves and muscles and plays a role in blood coagulation (as factor IV) and in many enzymatic processes. [NIH]

Calcium channel blocker: A drug used to relax the blood vessel and heart muscle, causing pressure inside blood vessels to drop. It also can regulate heart rhythm. [NIH]

Calcium Channel Blockers: A class of drugs that act by selective inhibition of calcium influx through cell membranes or on the release and binding of calcium in intracellular pools. Since they are inducers of vascular and other smooth muscle relaxation, they are used in the drug therapy of hypertension and cerebrovascular spasms, as myocardial protective agents,

and in the relaxation of uterine spasms. [NIH]

Camphor: A bicyclic monoterpene ketone found widely in plant (primarily the camphor tree, Cinnamomum camphora). Natural camphor is used topically as a skin antipruritic and as an anti-infective agent. [NIH]

Candidiasis: Infection with a fungus of the genus Candida. It is usually a superficial infection of the moist cutaneous areas of the body, and is generally caused by C. albicans; it most commonly involves the skin (dermatocandidiasis), oral mucous membranes (thrush, def. 1), respiratory tract (bronchocandidiasis), and vagina (vaginitis). Rarely there is a systemic infection or endocarditis. Called also moniliasis, candidosis, oidiomycosis, and formerly blastodendriosis. [EU]

Capillary: Any one of the minute vessels that connect the arterioles and venules, forming a network in nearly all parts of the body. Their walls act as semipermeable membranes for the interchange of various substances, including fluids, between the blood and tissue fluid; called also vas capillare. [EU]

Capillary Permeability: Property of blood capillary walls that allows for the selective exchange of substances. Small lipid-soluble molecules such as carbon dioxide and oxygen move freely by diffusion. Water and water-soluble molecules cannot pass through the endothelial walls and are dependent on microscopic pores. These pores show narrow areas (tight junctions) which may limit large molecule movement. [NIH]

Capsules: Hard or soft soluble containers used for the oral administration of medicine. [NIH]

Carbidopa: A peripheral inhibitor of dopa decarboxylase. It is given in parkinsonism along with levodopa to inhibit the conversion of levodopa to dopamine in the periphery, thereby reducing the peripheral adverse effects, increasing the amount of levodopa that reaches the central nervous system, and reducing the dose needed. It has no antiparkinson actions when given alone. [NIH]

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol, particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, (CH2O)n. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Carbon Dioxide: A colorless, odorless gas that can be formed by the body and is necessary for the respiration cycle of plants and animals. [NIH]

Carcinogenesis: The process by which normal cells are transformed into cancer cells. [NIH]

Carcinogenic: Producing carcinoma. [EU]

Cardiac: Having to do with the heart. [NIH]

Cardiac arrest: A sudden stop of heart function. [NIH]

Cardiac Output: The volume of blood passing through the heart per unit of time. It is usually expressed as liters (volume) per minute so as not to be confused with stroke volume (volume per beat). [NIH]

Cardiomyopathy: A general diagnostic term designating primary myocardial disease, often of obscure or unknown etiology. [EU]

Cardiopulmonary: Having to do with the heart and lungs. [NIH]

Cardiopulmonary Resuscitation: The artificial substitution of heart and lung action as indicated for heart arrest resulting from electric shock, drowning, respiratory arrest, or other causes. The two major components of cardiopulmonary resuscitation are artificial ventilation and closed-chest cardiac massage. [NIH]

Cardiopulmonary Resuscitation: The artificial substitution of heart and lung action as indicated for heart arrest resulting from electric shock, drowning, respiratory arrest, or other causes. The two major components of cardiopulmonary resuscitation are artificial ventilation and closed-chest cardiac massage. [NIH]

Cardiotonic: 1. Having a tonic effect on the heart. 2. An agent that has a tonic effect on the heart. [EU]

Cardiovascular: Having to do with the heart and blood vessels. [NIH]

Cardiovascular disease: Any abnormal condition characterized by dysfunction of the heart and blood vessels. CVD includes atherosclerosis (especially coronary heart disease, which can lead to heart attacks), cerebrovascular disease (e.g., stroke), and hypertension (high blood pressure). [NIH]

Cardiovascular System: The heart and the blood vessels by which blood is pumped and circulated through the body. [NIH]

Cardioversion: Electrical reversion of cardiac arrhythmias to normal sinus rhythm, formerly using alternatic current, but now employing direct current. [NIH]

Carnitine: Constituent of striated muscle and liver. It is used therapeutically to stimulate gastric and pancreatic secretions and in the treatment of hyperlipoproteinemias. [NIH]

Carotid Sinus: The dilated portion of the common carotid artery at its bifurcation into external and internal carotids. It contains baroreceptors which, when stimulated, cause slowing of the heart, vasodilatation, and a fall in blood pressure. [NIH]

Carpal Tunnel Syndrome: A median nerve injury inside the carpal tunnel that results in symptoms of pain, numbness, tingling, clumsiness, and a lack of sweating, which can be caused by work with certain hand and wrist postures. [NIH]

Carrier Proteins: Transport proteins that carry specific substances in the blood or across cell membranes. [NIH]

Case report: A detailed report of the diagnosis, treatment, and follow-up of an individual patient. Case reports also contain some demographic information about the patient (for example, age, gender, ethnic origin). [NIH]

Case series: A group or series of case reports involving patients who were given similar treatment. Reports of case series usually contain detailed information about the individual patients. This includes demographic information (for example, age, gender, ethnic origin) and information on diagnosis, treatment, response to treatment, and follow-up after treatment. [NIH]

Catecholamine: A group of chemical substances manufactured by the adrenal medulla and secreted during physiological stress. [NIH]

Catheterization: Use or insertion of a tubular device into a duct, blood vessel, hollow organ, or body cavity for injecting or withdrawing fluids for diagnostic or therapeutic purposes. It differs from intubation in that the tube here is used to restore or maintain patency in obstructions. [NIH]

Causal: Pertaining to a cause; directed against a cause. [EU]

Cell: The individual unit that makes up all of the tissues of the body. All living things are made up of one or more cells. [NIH]

Cell Cycle: The complex series of phenomena, occurring between the end of one cell division and the end of the next, by which cellular material is divided between daughter cells. [NIH]

Cell Division: The fission of a cell. [NIH]

Cell membrane: Cell membrane = plasma membrane. The structure enveloping a cell, enclosing the cytoplasm, and forming a selective permeability barrier; it consists of lipids, proteins, and some carbohydrates, the lipids thought to form a bilayer in which integral proteins are embedded to varying degrees. [EU]

Cell Respiration: The metabolic process of all living cells (animal and plant) in which oxygen is used to provide a source of energy for the cell. [NIH]

Cellulitis: An acute, diffuse, and suppurative inflammation of loose connective tissue, particularly the deep subcutaneous tissues, and sometimes muscle, which is most commonly seen as a result of infection of a wound, ulcer, or other skin lesions. [NIH]

Cellulose: A polysaccharide with glucose units linked as in cellobiose. It is the chief constituent of plant fibers, cotton being the purest natural form of the substance. As a raw material, it forms the basis for many derivatives used in chromatography, ion exchange materials, explosives manufacturing, and pharmaceutical preparations. [NIH]

Central Nervous System: The main information-processing organs of the nervous system, consisting of the brain, spinal cord, and meninges. [NIH]

Central Nervous System Infections: Pathogenic infections of the brain, spinal cord, and meninges. DNA virus infections; RNA virus infections; bacterial infections; mycoplasma infections; Spirochaetales infections; fungal infections; protozoan infections; helminthiasis; and prion diseases may involve the central nervous system as a primary or secondary process. [NIH]

Centrifugation: A method of separating organelles or large molecules that relies upon differential sedimentation through a preformed density gradient under the influence of a gravitational field generated in a centrifuge. [NIH]

Cerebral: Of or pertaining of the cerebrum or the brain. [EU]

Cerebrovascular: Pertaining to the blood vessels of the cerebrum, or brain. [EU]

Cerebrum: The largest part of the brain. It is divided into two hemispheres, or halves, called the cerebral hemispheres. The cerebrum controls muscle functions of the body and also controls speech, emotions, reading, writing, and learning. [NIH]

Cervical: Relating to the neck, or to the neck of any organ or structure. Cervical lymph nodes are located in the neck; cervical cancer refers to cancer of the uterine cervix, which is the lower, narrow end (the "neck") of the uterus. [NIH]

Cervix: The lower, narrow end of the uterus that forms a canal between the uterus and vagina. [NIH]

Character: In current usage, approximately equivalent to personality. The sum of the relatively fixed personality traits and habitual modes of response of an individual. [NIH]

Chemotactic Factors: Chemical substances that attract or repel cells or organisms. The concept denotes especially those factors released as a result of tissue injury, invasion, or immunologic activity, that attract leukocytes, macrophages, or other cells to the site of infection or insult. [NIH]

Chemotherapy: Treatment with anticancer drugs. [NIH]

Chest Pain: Pressure, burning, or numbness in the chest. [NIH]

Chiropractic: A system of treating bodily disorders by manipulation of the spine and other parts, based on the belief that the cause is the abnormal functioning of a nerve. [NIH]

Chlorine: A greenish-yellow, diatomic gas that is a member of the halogen family of elements. It has the atomic symbol Cl, atomic number 17, and atomic weight 70.906. It is a powerful irritant that can cause fatal pulmonary edema. Chlorine is used in manufacturing,

as a reagent in synthetic chemistry, for water purification, and in the production of chlorinated lime, which is used in fabric bleaching. [NIH]

Chlorophyll: Porphyrin derivatives containing magnesium that act to convert light energy in photosynthetic organisms. [NIH]

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Chromosomal: Pertaining to chromosomes. [EU]

Chromosome: Part of a cell that contains genetic information. Except for sperm and eggs, all human cells contain 46 chromosomes. [NIH]

Chronic: A disease or condition that persists or progresses over a long period of time. [NIH]

Chronic Fatigue Syndrome: Fatigue caused by the combined effects of different types of prolonged fatigue. [NIH]

Chronic renal: Slow and progressive loss of kidney function over several years, often resulting in end-stage renal disease. People with end-stage renal disease need dialysis or transplantation to replace the work of the kidneys. [NIH]

Circulatory system: The system that contains the heart and the blood vessels and moves blood throughout the body. This system helps tissues get enough oxygen and nutrients, and it helps them get rid of waste products. The lymph system, which connects with the blood system, is often considered part of the circulatory system. [NIH]

Cisplatin: An inorganic and water-soluble platinum complex. After undergoing hydrolysis, it reacts with DNA to produce both intra and interstrand crosslinks. These crosslinks appear to impair replication and transcription of DNA. The cytotoxicity of cisplatin correlates with cellular arrest in the G2 phase of the cell cycle. [NIH]

Clinical Medicine: The study and practice of medicine by direct examination of the patient. [NIH]

Clinical study: A research study in which patients receive treatment in a clinic or other medical facility. Reports of clinical studies can contain results for single patients (case reports) or many patients (case series or clinical trials). [NIH]

Clinical trial: A research study that tests how well new medical treatments or other interventions work in people. Each study is designed to test new methods of screening, prevention, diagnosis, or treatment of a disease. [NIH]

Cloning: The production of a number of genetically identical individuals; in genetic engineering, a process for the efficient replication of a great number of identical DNA molecules. [NIH]

Coagulation: 1. The process of clot formation. 2. In colloid chemistry, the solidification of a sol into a gelatinous mass; an alteration of a disperse phase or of a dissolved solid which causes the separation of the system into a liquid phase and an insoluble mass called the clot or curd. Coagulation is usually irreversible. 3. In surgery, the disruption of tissue by physical means to form an amorphous residuum, as in electrocoagulation and photocoagulation. [EU]

Cochlear: Of or pertaining to the cochlea. [EU]

Cochlear Diseases: Diseases of the cochlea, the part of the inner ear that is concerned with hearing. [NIH]

Cognition: Intellectual or mental process whereby an organism becomes aware of or obtains knowledge. [NIH]

Collapse: 1. A state of extreme prostration and depression, with failure of circulation. 2.

Abnormal falling in of the walls of any part of organ. [EU]

Combination chemotherapy: Treatment using more than one anticancer drug. [NIH]

Comorbidity: The presence of co-existing or additional diseases with reference to an initial diagnosis or with reference to the index condition that is the subject of study. Comorbidity may affect the ability of affected individuals to function and also their survival; it may be used as a prognostic indicator for length of hospital stay, cost factors, and outcome or survival. [NIH]

Complement: A term originally used to refer to the heat-labile factor in serum that causes immune cytolysis, the lysis of antibody-coated cells, and now referring to the entire functionally related system comprising at least 20 distinct serum proteins that is the effector not only of immune cytolysis but also of other biologic functions. Complement activation occurs by two different sequences, the classic and alternative pathways. The proteins of the classic pathway are termed 'components of complement' and are designated by the symbols C1 through C9. C1 is a calcium-dependent complex of three distinct proteins C1q, C1r and C1s. The proteins of the alternative pathway (collectively referred to as the properdin system) and complement regulatory proteins are known by semisystematic or trivial names. Fragments resulting from proteolytic cleavage of complement proteins are designated with lower-case letter suffixes, e.g., C3a. Inactivated fragments may be designated with the suffix 'i', e.g. C3bi. Activated components or complexes with biological activity are designated by a bar over the symbol e.g. C1 or C4b,2a. The classic pathway is activated by the binding of C1 to classic pathway activators, primarily antigen-antibody complexes containing IgM, IgG1, IgG3; C1q binds to a single IgM molecule or two adjacent IgG molecules. The alternative pathway can be activated by IgA immune complexes and also by nonimmunologic materials including bacterial endotoxins, microbial polysaccharides, and cell walls. Activation of the classic pathway triggers an enzymatic cascade involving C1, C4, C2 and C3; activation of the alternative pathway triggers a cascade involving C3 and factors B, D and P. Both result in the cleavage of C5 and the formation of the membrane attack complex. Complement activation also results in the formation of many biologically active complement fragments that act as anaphylatoxins, opsonins, or chemotactic factors. [EU]

Complementary and alternative medicine: CAM. Forms of treatment that are used in addition to (complementary) or instead of (alternative) standard treatments. These practices are not considered standard medical approaches. CAM includes dietary supplements, megadose vitamins, herbal preparations, special teas, massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Complementary medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used to enhance or complement the standard treatments. Complementary medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Computational Biology: A field of biology concerned with the development of techniques for the collection and manipulation of biological data, and the use of such data to make biological discoveries or predictions. This field encompasses all computational methods and theories applicable to molecular biology and areas of computer-based techniques for solving biological problems including manipulation of models and datasets. [NIH]

Concomitant: Accompanying; accessory; joined with another. [EU]

Confounding: Extraneous variables resulting in outcome effects that obscure or exaggerate the "true" effect of an intervention. [NIH]

Confusion: A mental state characterized by bewilderment, emotional disturbance, lack of clear thinking, and perceptual disorientation. [NIH]

Congestive heart failure: Weakness of the heart muscle that leads to a buildup of fluid in body tissues. [NIH]

Connective Tissue: Tissue that supports and binds other tissues. It consists of connective tissue cells embedded in a large amount of extracellular matrix. [NIH]

Connective Tissue: Tissue that supports and binds other tissues. It consists of connective tissue cells embedded in a large amount of extracellular matrix. [NIH]

Connexin 43: A 43 kD peptide which is a member of the connexin family of gap junction proteins. Connexin 43 is a product of a gene in the alpha class of connexin genes (the alpha-1 gene). It was first isolated from mammalian heart, but is widespread in the body including the brain. [NIH]

Consciousness: Sense of awareness of self and of the environment. [NIH]

Constipation: Infrequent or difficult evacuation of feces. [NIH]

Constriction: The act of constricting. [NIH]

Constriction, Pathologic: The condition of an anatomical structure's being constricted beyond normal dimensions. [NIH]

Consumption: Pulmonary tuberculosis. [NIH]

Contractility: Capacity for becoming short in response to a suitable stimulus. [EU]

Contraindications: Any factor or sign that it is unwise to pursue a certain kind of action or treatment, e. g. giving a general anesthetic to a person with pneumonia. [NIH]

Convulsions: A general term referring to sudden and often violent motor activity of cerebral or brainstem origin. Convulsions may also occur in the absence of an electrical cerebral discharge (e.g., in response to hypotension). [NIH]

Coordination: Muscular or motor regulation or the harmonious cooperation of muscles or groups of muscles, in a complex action or series of actions. [NIH]

Cornea: The transparent part of the eye that covers the iris and the pupil and allows light to enter the inside. [NIH]

Coronary: Encircling in the manner of a crown; a term applied to vessels; nerves, ligaments, etc. The term usually denotes the arteries that supply the heart muscle and, by extension, a pathologic involvement of them. [EU]

Coronary Artery Bypass: Surgical therapy of ischemic coronary artery disease achieved by grafting a section of saphenous vein, internal mammary artery, or other substitute between the aorta and the obstructed coronary artery distal to the obstructive lesion. [NIH]

Coronary Circulation: The circulation of blood through the coronary vessels of the heart. [NIH]

Coronary Disease: Disorder of cardiac function due to an imbalance between myocardial function and the capacity of the coronary vessels to supply sufficient flow for normal function. It is a form of myocardial ischemia (insufficient blood supply to the heart muscle) caused by a decreased capacity of the coronary vessels. [NIH]

Coronary heart disease: A type of heart disease caused by narrowing of the coronary arteries that feed the heart, which needs a constant supply of oxygen and nutrients carried by the blood in the coronary arteries. When the coronary arteries become narrowed or clogged by fat and cholesterol deposits and cannot supply enough blood to the heart, CHD results. [NIH]

Coronary Thrombosis: Presence of a thrombus in a coronary artery, often causing a myocardial infarction. [NIH]

Coronary Vessels: The veins and arteries of the heart. [NIH]

Corpus: The body of the uterus. [NIH]

Cortex: The outer layer of an organ or other body structure, as distinguished from the internal substance. [EU]

Cortical: Pertaining to or of the nature of a cortex or bark. [EU]

Cranial: Pertaining to the cranium, or to the anterior (in animals) or superior (in humans) end of the body. [EU]

Craniocerebral Trauma: Traumatic injuries involving the cranium and intracranial structures (i.e., brain; cranial nerves; meninges; and other structures). Injuries may be classified by whether or not the skull is penetrated (i.e., penetrating vs. nonpenetrating) or whether there is an associated hemorrhage. [NIH]

Cryptococcosis: Infection with a fungus of the species Cryptococcus neoformans. [NIH]

Cryptococcus: A mitosporic Tremellales fungal genus whose species usually have a capsule and do not form pseudomycellium. Teleomorphs include Filobasidiella and Fidobasidium. [NIH]

Cryptococcus neoformans: A species of the fungus Cryptococcus, which causes cryptococcosis. Its teleomorph is Filobasidiella neoformans. [NIH]

Curative: Tending to overcome disease and promote recovery. [EU]

Cutaneous: Having to do with the skin. [NIH]

Cyclic: Pertaining to or occurring in a cycle or cycles; the term is applied to chemical compounds that contain a ring of atoms in the nucleus. [EU]

Cystathionine beta-Synthase: A multifunctional pyridoxal phosphate enzyme. In the second stage of cysteine biosynthesis it catalyzes the reaction of homocysteine with serine to form cystathionine with the elimination of water. Deficiency of this enzyme leads to hyperhomocysteinemia and homocystinuria. EC 4.2.1.22. [NIH]

Cytokine: Small but highly potent protein that modulates the activity of many cell types, including T and B cells. [NIH]

Cytosine: A pyrimidine base that is a fundamental unit of nucleic acids. [NIH]

Cytostatic: An agent that suppresses cell growth and multiplication. [EU]

Cytotoxicity: Quality of being capable of producing a specific toxic action upon cells of special organs. [NIH]

Dairy Products: Raw and processed or manufactured milk and milk-derived products. These are usually from cows (bovine) but are also from goats, sheep, reindeer, and water buffalo. [NIH]

Databases, Bibliographic: Extensive collections, reputedly complete, of references and citations to books, articles, publications, etc., generally on a single subject or specialized subject area. Databases can operate through automated files, libraries, or computer disks. The concept should be differentiated from factual databases which is used for collections of data and facts apart from bibliographic references to them. [NIH]

Deamination: The removal of an amino group (NH2) from a chemical compound. [NIH]

Decarboxylation: The removal of a carboxyl group, usually in the form of carbon dioxide, from a chemical compound. [NIH]

Defibrillation: The act to arrest the fibrillation of (heart muscle) by applying electric shock across the chest, thus depolarizing the heart cells and allowing normal rhythm to return. [EU]

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or

involving degeneration; causing or tending to cause degeneration. [EU]

Dementia: An acquired organic mental disorder with loss of intellectual abilities of sufficient severity to interfere with social or occupational functioning. The dysfunction is multifaceted and involves memory, behavior, personality, judgment, attention, spatial relations, language, abstract thought, and other executive functions. The intellectual decline is usually progressive, and initially spares the level of consciousness. [NIH]

Dendrites: Extensions of the nerve cell body. They are short and branched and receive stimuli from other neurons. [NIH]

Density: The logarithm to the base 10 of the opacity of an exposed and processed film. [NIH]

Dental Caries: Localized destruction of the tooth surface initiated by decalcification of the enamel followed by enzymatic lysis of organic structures and leading to cavity formation. If left unchecked, the cavity may penetrate the enamel and dentin and reach the pulp. The three most prominent theories used to explain the etiology of the disase are that acids produced by bacteria lead to decalcification; that micro-organisms destroy the enamel protein; or that keratolytic micro-organisms produce chelates that lead to decalcification. [NIH]

Depolarization: The process or act of neutralizing polarity. In neurophysiology, the reversal of the resting potential in excitable cell membranes when stimulated, i.e., the tendency of the cell membrane potential to become positive with respect to the potential outside the cell. [EU]

Deuterium: Deuterium. The stable isotope of hydrogen. It has one neutron and one proton in the nucleus. [NIH]

Developed Countries: Countries that have reached a level of economic achievement through an increase of production, per capita income and consumption, and utilization of natural and human resources. [NIH]

Diabetes Mellitus: A heterogeneous group of disorders that share glucose intolerance in common. [NIH]

Diabetic Retinopathy: Retinopathy associated with diabetes mellitus, which may be of the background type, progressively characterized by microaneurysms, interretinal punctuate macular edema, or of the proliferative type, characterized by neovascularization of the retina and optic disk, which may project into the vitreous, proliferation of fibrous tissue, vitreous hemorrhage, and retinal detachment. [NIH]

Diagnostic procedure: A method used to identify a disease. [NIH]

Dialysate: A cleansing liquid used in the two major forms of dialysis--hemodialysis and peritoneal dialysis. [NIH]

Dialyzer: A part of the hemodialysis machine. (See hemodialysis under dialysis.) The dialyzer has two sections separated by a membrane. One section holds dialysate. The other holds the patient's blood. [NIH]

Diastole: Period of relaxation of the heart, especially the ventricles. [NIH]

Diastolic: Of or pertaining to the diastole. [EU]

Diathermy: The induction of local hyperthermia by either short radio waves or high-frequency sound waves. [NIH]

Diffusion: The tendency of a gas or solute to pass from a point of higher pressure or concentration to a point of lower pressure or concentration and to distribute itself throughout the available space; a major mechanism of biological transport. [NIH]

Digestion: The process of breakdown of food for metabolism and use by the body. [NIH]

Digestive system: The organs that take in food and turn it into products that the body can

use to stay healthy. Waste products the body cannot use leave the body through bowel movements. The digestive system includes the salivary glands, mouth, esophagus, stomach, liver, pancreas, gallbladder, small and large intestines, and rectum. [NIH]

Digestive tract: The organs through which food passes when food is eaten. These organs are the mouth, esophagus, stomach, small and large intestines, and rectum. [NIH]

Dilatation: The act of dilating. [NIH]

Dilation: A process by which the pupil is temporarily enlarged with special eye drops (mydriatic); allows the eye care specialist to better view the inside of the eye. [NIH]

Dilator: A device used to stretch or enlarge an opening. [NIH]

Dipyridamole: A drug that prevents blood cell clumping and enhances the effectiveness of fluorouracil and other chemotherapeutic agents. [NIH]

Direct: 1. Straight; in a straight line. 2. Performed immediately and without the intervention of subsidiary means. [EU]

Disinfectant: An agent that disinfects; applied particularly to agents used on inanimate objects. [EU]

Disorientation: The loss of proper bearings, or a state of mental confusion as to time, place, or identity. [EU]

Dissociation: 1. The act of separating or state of being separated. 2. The separation of a molecule into two or more fragments (atoms, molecules, ions, or free radicals) produced by the absorption of light or thermal energy or by solvation. 3. In psychology, a defense mechanism in which a group of mental processes are segregated from the rest of a person's mental activity in order to avoid emotional distress, as in the dissociative disorders (q.v.), or in which an idea or object is segregated from its emotional significance; in the first sense it is roughly equivalent to splitting, in the second, to isolation. 4. A defect of mental integration in which one or more groups of mental processes become separated off from normal consciousness and, thus separated, function as a unitary whole. [EU]

Dissociative Disorders: Sudden temporary alterations in the normally integrative functions of consciousness. [NIH]

Distal: Remote; farther from any point of reference; opposed to proximal. In dentistry, used to designate a position on the dental arch farther from the median line of the jaw. [EU]

Diuretics, Thiazide: Diuretics characterized as analogs of 1,2,4-benzothiadiazine-1,1-dioxide. All have a common mechanism of action and differ primarily in the dose required to produce a given effect. They act directly on the kidney to increase the excretion of sodium chloride and water and also increase excretion of potassium ions. [NIH]

Dizziness: An imprecise term which may refer to a sense of spatial disorientation, motion of the environment, or lightheadedness. [NIH]

Dobutamine: A beta-2 agonist catecholamine that has cardiac stimulant action without evoking vasoconstriction or tachycardia. It is proposed as a cardiotonic after myocardial infarction or open heart surgery. [NIH]

Domesticated: Species in which the evolutionary process has been influenced by humans to meet their needs. [NIH]

Dopa: The racemic or DL form of DOPA, an amino acid found in various legumes. The dextro form has little physiologic activity but the levo form (levodopa) is a very important physiologic mediator and precursor and pharmacological agent. [NIH]

Dopa Decarboxylase: One of the aromatic-l-amino-acid decarboxylases, this enzyme is responsible for the conversion of dopa to dopamine. It is of clinical importance in the

treatment of Parkinson's disease. EC 4.1.1.28. [NIH]

Dopamine: An endogenous catecholamine and prominent neurotransmitter in several systems of the brain. In the synthesis of catecholamines from tyrosine, it is the immediate precursor to norepinephrine and epinephrine. Dopamine is a major transmitter in the extrapyramidal system of the brain, and important in regulating movement. A family of dopaminergic receptor subtypes mediate its action. Dopamine is used pharmacologically for its direct (beta adrenergic agonist) and indirect (adrenergic releasing) sympathomimetic effects including its actions as an inotropic agent and as a renal vasodilator. [NIH]

Dose-dependent: Refers to the effects of treatment with a drug. If the effects change when the dose of the drug is changed, the effects are said to be dose dependent. [NIH]

Dose-limiting: Describes side effects of a drug or other treatment that are serious enough to prevent an increase in dose or level of that treatment. [NIH]

Doxazosin: A selective alpha-1-adrenergic blocker that lowers serum cholesterol. It is also effective in the treatment of hypertension. [NIH]

Drug Interactions: The action of a drug that may affect the activity, metabolism, or toxicity of another drug. [NIH]

Dura mater: The outermost, toughest, and most fibrous of the three membranes (meninges) covering the brain and spinal cord; called also pachymeninx. [EU]

Dyes: Chemical substances that are used to stain and color other materials. The coloring may or may not be permanent. Dyes can also be used as therapeutic agents and test reagents in medicine and scientific research. [NIH]

Dyslipidemia: Disorders in the lipoprotein metabolism; classified as hypercholesterolemia, hypertriglyceridemia, combined hyperlipidemia, and low levels of high-density lipoprotein (HDL) cholesterol. All of the dyslipidemias can be primary or secondary. Both elevated levels of low-density lipoprotein (LDL) cholesterol and low levels of HDL cholesterol predispose to premature atherosclerosis. [NIH]

Dyspepsia: Impaired digestion, especially after eating. [NIH]

Eardrum: A thin, tense membrane forming the greater part of the outer wall of the tympanic cavity and separating it from the external auditory meatus; it constitutes the boundary between the external and middle ear. [NIH]

Eclampsia: Onset of convulsions or coma in a previously diagnosed pre-eclamptic patient. [NIH]

Edema: Excessive amount of watery fluid accumulated in the intercellular spaces, most commonly present in subcutaneous tissue. [NIH]

Effector: It is often an enzyme that converts an inactive precursor molecule into an active second messenger. [NIH]

Effector cell: A cell that performs a specific function in response to a stimulus; usually used to describe cells in the immune system. [NIH]

Efficacy: The extent to which a specific intervention, procedure, regimen, or service produces a beneficial result under ideal conditions. Ideally, the determination of efficacy is based on the results of a randomized control trial. [NIH]

Eicosanoids: A class of oxygenated, endogenous, unsaturated fatty acids derived from arachidonic acid. They include prostaglandins, leukotrienes, thromboxanes, and hydroxyeicosatetraenoic acid compounds (HETE). They are hormone-like substances that act near the site of synthesis without altering functions throughout the body. [NIH]

Elective: Subject to the choice or decision of the patient or physician; applied to procedures

that are advantageous to the patient but not urgent. [EU]

Electric shock: A dangerous patho-physiological effect resulting from an electric current passing through the body of a human or animal. [NIH]

Electrocardiogram: Measurement of electrical activity during heartbeats. [NIH]

Electrolyte: A substance that dissociates into ions when fused or in solution, and thus becomes capable of conducting electricity; an ionic solute. [EU]

Embryo: The prenatal stage of mammalian development characterized by rapid morphological changes and the differentiation of basic structures. [NIH]

Encephalopathy: A disorder of the brain that can be caused by disease, injury, drugs, or chemicals. [NIH]

Endarterectomy: Surgical excision, performed under general anesthesia, of the atheromatous tunica intima of an artery. When reconstruction of an artery is performed as an endovascular procedure through a catheter, it is called atherectomy. [NIH]

Endocrine Glands: Ductless glands that secrete substances which are released directly into the circulation and which influence metabolism and other body functions. [NIH]

Endothelial cell: The main type of cell found in the inside lining of blood vessels, lymph vessels, and the heart. [NIH]

Endothelium: A layer of epithelium that lines the heart, blood vessels (endothelium, vascular), lymph vessels (endothelium, lymphatic), and the serous cavities of the body. [NIH]

Endothelium, Lymphatic: Unbroken cellular lining (intima) of the lymph vessels (e.g., the high endothelial lymphatic venules). It is more permeable than vascular endothelium, lacking selective absorption and functioning mainly to remove plasma proteins that have filtered through the capillaries into the tissue spaces. [NIH]

Endothelium, Vascular: Single pavement layer of cells which line the luminal surface of the entire vascular system and regulate the transport of macromolecules and blood components from interstitium to lumen; this function has been most intensively studied in the blood capillaries. [NIH]

Endothelium-derived: Small molecule that diffuses to the adjacent muscle layer and relaxes it. [NIH]

Endotoxemia: A condition characterized by the presence of endotoxins in the blood. If endotoxemia is the result of gram-negative rod-shaped bacteria, shock may occur. [NIH]

Endotoxin: Toxin from cell walls of bacteria. [NIH]

End-stage renal: Total chronic kidney failure. When the kidneys fail, the body retains fluid and harmful wastes build up. A person with ESRD needs treatment to replace the work of the failed kidneys. [NIH]

Energy balance: Energy is the capacity of a body or a physical system for doing work. Energy balance is the state in which the total energy intake equals total energy needs. [NIH]

Environmental Health: The science of controlling or modifying those conditions, influences, or forces surrounding man which relate to promoting, establishing, and maintaining health. [NIH]

Enzymatic: Phase where enzyme cuts the precursor protein. [NIH]

Enzyme: A protein that speeds up chemical reactions in the body. [NIH]

Enzyme Inhibitors: Compounds or agents that combine with an enzyme in such a manner as to prevent the normal substrate-enzyme combination and the catalytic reaction. [NIH]

Eosinophilia: Abnormal increase in eosinophils in the blood, tissues or organs. [NIH]

Epidemic: Occurring suddenly in numbers clearly in excess of normal expectancy; said especially of infectious diseases but applied also to any disease, injury, or other health-related event occurring in such outbreaks. [EU]

Epidural: The space between the wall of the spinal canal and the covering of the spinal cord. An epidural injection is given into this space. [NIH]

Epinephrine: The active sympathomimetic hormone from the adrenal medulla in most species. It stimulates both the alpha- and beta- adrenergic systems, causes systemic vasoconstriction and gastrointestinal relaxation, stimulates the heart, and dilates bronchi and cerebral vessels. It is used in asthma and cardiac failure and to delay absorption of local anesthetics. [NIH]

Epithelium: One or more layers of epithelial cells, supported by the basal lamina, which covers the inner or outer surfaces of the body. [NIH]

Equipment and Supplies: Expendable and nonexpendable equipment, supplies, apparatus, and instruments that are used in diagnostic, surgical, therapeutic, scientific, and experimental procedures. [NIH]

Erectile: The inability to get or maintain an erection for satisfactory sexual intercourse. Also called impotence. [NIH]

Erection: The condition of being made rigid and elevated; as erectile tissue when filled with blood. [EU]

ERV: The expiratory reserve volume is the largest volume of gas that can be expired from the end-expiratory level. [NIH]

Erythrocyte Volume: Volume of circulating erythrocytes. It is usually measured by radioisotope dilution technique. [NIH]

Erythrocytes: Red blood cells. Mature erythrocytes are non-nucleated, biconcave disks containing hemoglobin whose function is to transport oxygen. [NIH]

Erythropoietin: Glycoprotein hormone, secreted chiefly by the kidney in the adult and the liver in the fetus, that acts on erythroid stem cells of the bone marrow to stimulate proliferation and differentiation. [NIH]

Esophagus: The muscular tube through which food passes from the throat to the stomach. [NIH]

Ethanolamine: A viscous, hygroscopic amino alcohol with an ammoniacal odor. It is widely distributed in biological tissue and is a component of lecithin. It is used as a surfactant, fluorimetric reagent, and to remove CO2 and H2S from natural gas and other gases. [NIH]

Etoposide: A semisynthetic derivative of podophyllotoxin that exhibits antitumor activity. Etoposide inhibits DNA synthesis by forming a complex with topoisomerase II and DNA. This complex induces breaks in double stranded DNA and prevents repair by topoisomerase II binding. Accumulated breaks in DNA prevent entry into the mitotic phase of cell division, and lead to cell death. Etoposide acts primarily in the G2 and S phases of the cell cycle. [NIH]

Evacuation: An emptying, as of the bowels. [EU]

Evoke: The electric response recorded from the cerebral cortex after stimulation of a peripheral sense organ. [NIH]

Excrete: To get rid of waste from the body. [NIH]

Exogenous: Developed or originating outside the organism, as exogenous disease. [EU]

Expiration: The act of breathing out, or expelling air from the lungs. [EU]

Expiratory: The volume of air which leaves the breathing organs in each expiration. [NIH]

Expiratory Reserve Volume: The extra volume of air that can be expired with maximum effort beyond the level reached at the end of a normal, quiet expiration. Common abbreviation is ERV. [NIH]

Extracellular: Outside a cell or cells. [EU]

Extracorporeal: Situated or occurring outside the body. [EU]

Extraction: The process or act of pulling or drawing out. [EU]

Extrapyramidal: Outside of the pyramidal tracts. [EU]

Family Planning: Programs or services designed to assist the family in controlling reproduction by either improving or diminishing fertility. [NIH]

Fasciitis: Inflammation of the fascia. There are three major types: 1) Eosinophilic fasciitis, an inflammatory reaction with eosinophilia, producing hard thickened skin with an orange-peel configuration suggestive of scleroderma and considered by some a variant of scleroderma; 2) Necrotizing fasciitis, a serious fulminating infection (usually by a beta hemolytic Streptococcus) causing extensive necrosis of superficial fascia; 3) Nodular/Pseudosarcomatous/Proliferative fasciitis, characterized by a rapid growth of fibroblasts with mononuclear inflammatory cells and proliferating capillaries in soft tissue, often the forearm; it is not malignant but is sometimes mistaken for fibrosarcoma. [NIH]

Fat: Total lipids including phospholipids. [NIH]

Fatigue: The state of weariness following a period of exertion, mental or physical, characterized by a decreased capacity for work and reduced efficiency to respond to stimuli. [NIH]

Fatty acids: A major component of fats that are used by the body for energy and tissue development. [NIH]

Febrile: Pertaining to or characterized by fever. [EU]

Feces: The excrement discharged from the intestines, consisting of bacteria, cells exfoliated from the intestines, secretions, chiefly of the liver, and a small amount of food residue. [EU]

Fetus: The developing offspring from 7 to 8 weeks after conception until birth. [NIH]

Fibrillation: A small, local, involuntary contraction of muscle, invisible under the skin, resulting from spontaneous activation of single muscle cells or muscle fibres. [EU]

Fibrin: A protein derived from fibrinogen in the presence of thrombin, which forms part of the blood clot. [NIH]

Fibrinogen: Plasma glycoprotein clotted by thrombin, composed of a dimer of three non-identical pairs of polypeptide chains (alpha, beta, gamma) held together by disulfide bonds. Fibrinogen clotting is a sol-gel change involving complex molecular arrangements: whereas fibrinogen is cleaved by thrombin to form polypeptides A and B, the proteolytic action of other enzymes yields different fibrinogen degradation products. [NIH]

Fibroblasts: Connective tissue cells which secrete an extracellular matrix rich in collagen and other macromolecules. [NIH]

Fibrosarcoma: A type of soft tissue sarcoma that begins in fibrous tissue, which holds bones, muscles, and other organs in place. [NIH]

Fibrosis: Any pathological condition where fibrous connective tissue invades any organ, usually as a consequence of inflammation or other injury. [NIH]

Fluconazole: Triazole antifungal agent that is used to treat oropharyngeal candidiasis and cryptococcal meningitis in AIDS. [NIH]

Flucytosine: A fluorinated cytosine analog that is used as an antifungal agent. [NIH]

Fluid Therapy: Therapy whose basic objective is to restore the volume and composition of the body fluids to normal with respect to water-electrolyte balance. Fluids may be administered intravenously, orally, by intermittent gavage, or by hypodermoclysis. [NIH]

Fluorine: A nonmetallic, diatomic gas that is a trace element and member of the halogen family. It is used in dentistry as flouride to prevent dental caries. [NIH]

Fluorouracil: A pyrimidine analog that acts as an antineoplastic antimetabolite and also has immunosuppressant. It interferes with DNA synthesis by blocking the thymidylate synthetase conversion of deoxyuridylic acid to thymidylic acid. [NIH]

Flushing: A transient reddening of the face that may be due to fever, certain drugs, exertion, stress, or a disease process. [NIH]

Flutter: A rapid vibration or pulsation. [EU]

Foot Care: Taking special steps to avoid foot problems such as sores, cuts, bunions, and calluses. Good care includes daily examination of the feet, toes, and toenails and choosing shoes and socks or stockings that fit well. People with diabetes have to take special care of their feet because nerve damage and reduced blood flow sometimes mean they will have less feeling in their feet than normal. They may not notice cuts and other problems as soon as they should. [NIH]

Foramen: A natural hole of perforation, especially one in a bone. [NIH]

Forearm: The part between the elbow and the wrist. [NIH]

Fungi: A kingdom of eukaryotic, heterotrophic organisms that live as saprobes or parasites, including mushrooms, yeasts, smuts, molds, etc. They reproduce either sexually or asexually, and have life cycles that range from simple to complex. Filamentous fungi refer to those that grow as multicelluar colonies (mushrooms and molds). [NIH]

Fungus: A general term used to denote a group of eukaryotic protists, including mushrooms, yeasts, rusts, moulds, smuts, etc., which are characterized by the absence of chlorophyll and by the presence of a rigid cell wall composed of chitin, mannans, and sometimes cellulose. They are usually of simple morphological form or show some reversible cellular specialization, such as the formation of pseudoparenchymatous tissue in the fruiting body of a mushroom. The dimorphic fungi grow, according to environmental conditions, as moulds or yeasts. [EU]

Gallbladder: The pear-shaped organ that sits below the liver. Bile is concentrated and stored in the gallbladder. [NIH]

Gamma-interferon: Interferon produced by T-lymphocytes in response to various mitogens and antigens. Gamma interferon appears to have potent antineoplastic, immunoregulatory and antiviral activity. [NIH]

Ganglia: Clusters of multipolar neurons surrounded by a capsule of loosely organized connective tissue located outside the central nervous system. [NIH]

Ganglionic Blockers: Agents having as their major action the interruption of neural transmission at nicotinic receptors on postganglionic autonomic neurons. Because their actions are so broad, including blocking of sympathetic and parasympathetic systems, their therapeutic use has been largely supplanted by more specific drugs. They may still be used in the control of blood pressure in patients with acute dissecting aortic aneurysm and for the induction of hypotension in surgery. [NIH]

Gangrene: Death and putrefaction of tissue usually due to a loss of blood supply. [NIH]

Gas: Air that comes from normal breakdown of food. The gases are passed out of the body through the rectum (flatus) or the mouth (burp). [NIH]

Gas exchange: Primary function of the lungs; transfer of oxygen from inhaled air into the blood and of carbon dioxide from the blood into the lungs. [NIH]

Gastric: Having to do with the stomach. [NIH]

Gastric Emptying: The evacuation of food from the stomach into the duodenum. [NIH]

Gastric Juices: Liquids produced in the stomach to help break down food and kill bacteria. [NIH]

Gastric Mucosa: Surface epithelium in the stomach that invaginates into the lamina propria, forming gastric pits. Tubular glands, characteristic of each region of the stomach (cardiac, gastric, and pyloric), empty into the gastric pits. The gastric mucosa is made up of several different kinds of cells. [NIH]

Gastroenteritis: An acute inflammation of the lining of the stomach and intestines, characterized by anorexia, nausea, diarrhoea, abdominal pain, and weakness, which has various causes, including food poisoning due to infection with such organisms as Escherichia coli, Staphylococcus aureus, and Salmonella species; consumption of irritating food or drink; or psychological factors such as anger, stress, and fear. Called also enterogastritis. [EU]

Gastrointestinal: Refers to the stomach and intestines. [NIH]

Gastrointestinal tract: The stomach and intestines. [NIH]

Gastroparesis: Nerve or muscle damage in the stomach. Causes slow digestion and emptying, vomiting, nausea, or bloating. Also called delayed gastric emptying. [NIH]

Gene: The functional and physical unit of heredity passed from parent to offspring. Genes are pieces of DNA, and most genes contain the information for making a specific protein. [NIH]

Gene Expression: The phenotypic manifestation of a gene or genes by the processes of gene action. [NIH]

Genetic Engineering: Directed modification of the gene complement of a living organism by such techniques as altering the DNA, substituting genetic material by means of a virus, transplanting whole nuclei, transplanting cell hybrids, etc. [NIH]

Genital: Pertaining to the genitalia. [EU]

Geriatric: Pertaining to the treatment of the aged. [EU]

Gestation: The period of development of the young in viviparous animals, from the time of fertilization of the ovum until birth. [EU]

Ginseng: An araliaceous genus of plants that contains a number of pharmacologically active agents used as stimulants, sedatives, and tonics, especially in traditional medicine. [NIH]

Gland: An organ that produces and releases one or more substances for use in the body. Some glands produce fluids that affect tissues or organs. Others produce hormones or participate in blood production. [NIH]

Glomerular: Pertaining to or of the nature of a glomerulus, especially a renal glomerulus. [EU]

Glomerular Filtration Rate: The volume of water filtered out of plasma through glomerular capillary walls into Bowman's capsules per unit of time. It is considered to be equivalent to inulin clearance. [NIH]

Glomerulus: A tiny set of looping blood vessels in the nephron where blood is filtered in the kidney. [NIH]

Glucose: D-Glucose. A primary source of energy for living organisms. It is naturally occurring and is found in fruits and other parts of plants in its free state. It is used

therapeutically in fluid and nutrient replacement. [NIH]

Glucose Intolerance: A pathological state in which the fasting plasma glucose level is less than 140 mg per deciliter and the 30-, 60-, or 90-minute plasma glucose concentration following a glucose tolerance test exceeds 200 mg per deciliter. This condition is seen frequently in diabetes mellitus but also occurs with other diseases. [NIH]

Glycoprotein: A protein that has sugar molecules attached to it. [NIH]

Goats: Any of numerous agile, hollow-horned ruminants of the genus Capra, closely related to the sheep. [NIH]

Governing Board: The group in which legal authority is vested for the control of health-related institutions and organizations. [NIH]

Grade: The grade of a tumor depends on how abnormal the cancer cells look under a microscope and how quickly the tumor is likely to grow and spread. Grading systems are different for each type of cancer. [NIH]

Grafting: The operation of transfer of tissue from one site to another. [NIH]

Gram-negative: Losing the stain or decolorized by alcohol in Gram's method of staining, a primary characteristic of bacteria having a cell wall composed of a thin layer of peptidoglycan covered by an outer membrane of lipoprotein and lipopolysaccharide. [EU]

Granulocytes: Leukocytes with abundant granules in the cytoplasm. They are divided into three groups: neutrophils, eosinophils, and basophils. [NIH]

Growth: The progressive development of a living being or part of an organism from its earliest stage to maturity. [NIH]

Guanethidine: An antihypertensive agent that acts by inhibiting selectively transmission in post-ganglionic adrenergic nerves. It is believed to act mainly by preventing the release of norepinephrine at nerve endings and causes depletion of norepinephrine in peripheral sympathetic nerve terminals as well as in tissues. [NIH]

Guanylate Cyclase: An enzyme that catalyzes the conversion of GTP to 3',5'-cyclic GMP and pyrophosphate. It also acts on ITP and dGTP. (From Enzyme Nomenclature, 1992) EC 4.6.1.2. [NIH]

Guinea Pigs: A common name used for the family Caviidae. The most common species is Cavia porcellus which is the domesticated guinea pig used for pets and biomedical research. [NIH]

Haematoma: A localized collection of blood, usually clotted, in an organ, space, or tissue, due to a break in the wall of a blood vessel. [EU]

Haemodialysis: The removal of certain elements from the blood by virtue of the difference in the rates of their diffusion through a semipermeable membrane, e.g., by means of a haemodialyzer. [EU]

Halogens: A family of nonmetallic, generally electronegative, elements of group VIIa of the periodic table. They are all multivalent and have oxidation numbers of -1 (the most common), 1, 3, 5, and 7. [NIH]

Headache: Pain in the cranial region that may occur as an isolated and benign symptom or as a manifestation of a wide variety of conditions including subarachnoid hemorrhage; craniocerebral trauma; central nervous system infections; intracranial hypertension; and other disorders. In general, recurrent headaches that are not associated with a primary disease process are referred to as headache disorders (e.g., migraine). [NIH]

Headache Disorders: Common conditions characterized by persistent or recurrent headaches. Headache syndrome classification systems may be based on etiology (e.g.,

vascular headache, post-traumatic headaches, etc.), temporal pattern (e.g., cluster headache, paroxysmal hemicrania, etc.), and precipitating factors (e.g., cough headache). [NIH]

Hearing aid: A miniature, portable sound amplifier for persons with impaired hearing, consisting of a microphone, audio amplifier, earphone, and battery. [NIH]

Heart Arrest: Sudden and usually momentary cessation of the heart beat. This sudden cessation may, but not usually, lead to death, sudden, cardiac. [NIH]

Heart attack: A seizure of weak or abnormal functioning of the heart. [NIH]

Heart failure: Loss of pumping ability by the heart, often accompanied by fatigue, breathlessness, and excess fluid accumulation in body tissues. [NIH]

Heartbeat: One complete contraction of the heart. [NIH]

Hematocrit: Measurement of the volume of packed red cells in a blood specimen by centrifugation. The procedure is performed using a tube with graduated markings or with automated blood cell counters. It is used as an indicator of erythrocyte status in disease. For example, anemia shows a low hematocrit, polycythemia, high values. [NIH]

Heme: The color-furnishing portion of hemoglobin. It is found free in tissues and as the prosthetic group in many hemeproteins. [NIH]

Hemodiafiltration: The combination of hemodialysis and hemofiltration either simultaneously or sequentially. Convective transport (hemofiltration) may be better for removal of larger molecular weight substances and diffusive transport (hemodialysis) for smaller molecular weight solutes. [NIH]

Hemodialysis: The use of a machine to clean wastes from the blood after the kidneys have failed. The blood travels through tubes to a dialyzer, which removes wastes and extra fluid. The cleaned blood then flows through another set of tubes back into the body. [NIH]

Hemodialyzer: Apparatus for hemodialysis performing the functions of human kidneys in place of the damaged organs; highly specialized medical equipment used for treating kidney failure by passing the body's toxic substances through an external artificial kidney. [NIH]

Hemofiltration: Extracorporeal ultrafiltration technique without hemodialysis for treatment of fluid overload and electrolyte disturbances affecting renal, cardiac, or pulmonary function. [NIH]

Hemoglobin: One of the fractions of glycosylated hemoglobin A1c. Glycosylated hemoglobin is formed when linkages of glucose and related monosaccharides bind to hemoglobin A and its concentration represents the average blood glucose level over the previous several weeks. HbA1c levels are used as a measure of long-term control of plasma glucose (normal, 4 to 6 percent). In controlled diabetes mellitus, the concentration of glycosylated hemoglobin A is within the normal range, but in uncontrolled cases the level may be 3 to 4 times the normal conentration. Generally, complications are substantially lower among patients with Hb levels of 7 percent or less than in patients with HbA1c levels of 9 percent or more. [NIH]

Hemoglobin A: Normal adult human hemoglobin. The globin moiety consists of two alpha and two beta chains. [NIH]

Hemolysis: The destruction of erythrocytes by many different causal agents such as antibodies, bacteria, chemicals, temperature, and changes in tonicity. [NIH]

Hemolytic: A disease that affects the blood and blood vessels. It destroys red blood cells, cells that cause the blood to clot, and the lining of blood vessels. HUS is often caused by the Escherichia coli bacterium in contaminated food. People with HUS may develop acute renal failure. [NIH]

Hemorrhage: Bleeding or escape of blood from a vessel. [NIH]

Hemostasis: The process which spontaneously arrests the flow of blood from vessels carrying blood under pressure. It is accomplished by contraction of the vessels, adhesion and aggregation of formed blood elements, and the process of blood or plasma coagulation. [NIH]

Hepatic: Refers to the liver. [NIH]

Hepatitis: Inflammation of the liver and liver disease involving degenerative or necrotic alterations of hepatocytes. [NIH]

Hepatocytes: The main structural component of the liver. They are specialized epithelial cells that are organized into interconnected plates called lobules. [NIH]

Heredity: 1. The genetic transmission of a particular quality or trait from parent to offspring. 2. The genetic constitution of an individual. [EU]

Histamine: 1H-Imidazole-4-ethanamine. A depressor amine derived by enzymatic decarboxylation of histidine. It is a powerful stimulant of gastric secretion, a constrictor of bronchial smooth muscle, a vasodilator, and also a centrally acting neurotransmitter. [NIH]

Histidine: An essential amino acid important in a number of metabolic processes. It is required for the production of histamine. [NIH]

Homologous: Corresponding in structure, position, origin, etc., as (a) the feathers of a bird and the scales of a fish, (b) antigen and its specific antibody, (c) allelic chromosomes. [EU]

Hormonal: Pertaining to or of the nature of a hormone. [EU]

Hormone: A substance in the body that regulates certain organs. Hormones such as gastrin help in breaking down food. Some hormones come from cells in the stomach and small intestine. [NIH]

Host: Any animal that receives a transplanted graft. [NIH]

Hydrogen: The first chemical element in the periodic table. It has the atomic symbol H, atomic number 1, and atomic weight 1. It exists, under normal conditions, as a colorless, odorless, tasteless, diatomic gas. Hydrogen ions are protons. Besides the common H1 isotope, hydrogen exists as the stable isotope deuterium and the unstable, radioactive isotope tritium. [NIH]

Hydrogen Peroxide: A strong oxidizing agent used in aqueous solution as a ripening agent, bleach, and topical anti-infective. It is relatively unstable and solutions deteriorate over time unless stabilized by the addition of acetanilide or similar organic materials. [NIH]

Hydrolysis: The process of cleaving a chemical compound by the addition of a molecule of water. [NIH]

Hyperbilirubinemia: Pathologic process consisting of an abnormal increase in the amount of bilirubin in the circulating blood, which may result in jaundice. [NIH]

Hypercholesterolemia: Abnormally high levels of cholesterol in the blood. [NIH]

Hyperglycemia: Abnormally high blood sugar. [NIH]

Hyperhomocysteinemia: An inborn error of methionone metabolism which produces an excess of homocysteine in the blood. It is often caused by a deficiency of cystathionine beta-synthase and is a risk factor for coronary vascular disease. [NIH]

Hyperlipidemia: An excess of lipids in the blood. [NIH]

Hypersensitivity: Altered reactivity to an antigen, which can result in pathologic reactions upon subsequent exposure to that particular antigen. [NIH]

Hypertension: Persistently high arterial blood pressure. Currently accepted threshold levels

are 140 mm Hg systolic and 90 mm Hg diastolic pressure. [NIH]

Hyperthermia: A type of treatment in which body tissue is exposed to high temperatures to damage and kill cancer cells or to make cancer cells more sensitive to the effects of radiation and certain anticancer drugs. [NIH]

Hypertriglyceridemia: Condition of elevated triglyceride concentration in the blood; an inherited form occurs in familial hyperlipoproteinemia IIb and hyperlipoproteinemia type IV. It has been linked to higher risk of heart disease and arteriosclerosis. [NIH]

Hypertrophy: General increase in bulk of a part or organ, not due to tumor formation, nor to an increase in the number of cells. [NIH]

Hyperventilation: A pulmonary ventilation rate faster than is metabolically necessary for the exchange of gases. It is the result of an increased frequency of breathing, an increased tidal volume, or a combination of both. It causes an excess intake of oxygen and the blowing off of carbon dioxide. [NIH]

Hypotension: Abnormally low blood pressure. [NIH]

Hypotensive: Characterized by or causing diminished tension or pressure, as abnormally low blood pressure. [EU]

Hypothalamus: Ventral part of the diencephalon extending from the region of the optic chiasm to the caudal border of the mammillary bodies and forming the inferior and lateral walls of the third ventricle. [NIH]

Hypoventilation: A reduction in the amount of air entering the pulmonary alveoli. [NIH]

Hypovolemia: An abnormally low volume of blood circulating through the body. It may result in hypovolemic shock. [NIH]

Hypoxemia: Deficient oxygenation of the blood; hypoxia. [EU]

Hypoxia: Reduction of oxygen supply to tissue below physiological levels despite adequate perfusion of the tissue by blood. [EU]

Hysteroscopy: Endoscopic examination, therapy or surgery of the interior of the uterus. [NIH]

Id: The part of the personality structure which harbors the unconscious instinctive desires and strivings of the individual. [NIH]

Idazoxan: An alpha(2)-adrenoceptor antagonist. It has been used experimentally to test the binding activity of other chemicals. [NIH]

Idiopathic: Describes a disease of unknown cause. [NIH]

Immune response: The activity of the immune system against foreign substances (antigens). [NIH]

Immune system: The organs, cells, and molecules responsible for the recognition and disposal of foreign ("non-self") material which enters the body. [NIH]

Immunodeficiency: The decreased ability of the body to fight infection and disease. [NIH]

Immunodeficiency syndrome: The inability of the body to produce an immune response. [NIH]

Immunoglobulins: Glycoproteins present in the blood (antibodies) and in other tissue. They are classified by structure and activity into five classes (IgA, IgD, IgE, IgG, IgM). [NIH]

Immunosuppressive: Describes the ability to lower immune system responses. [NIH]

Impairment: In the context of health experience, an impairment is any loss or abnormality of psychological, physiological, or anatomical structure or function. [NIH]

Implantation: The insertion or grafting into the body of biological, living, inert, or

radioactive material. [EU]

Impotence: The inability to perform sexual intercourse. [NIH]

In vitro: In the laboratory (outside the body). The opposite of in vivo (in the body). [NIH]

In vivo: In the body. The opposite of in vitro (outside the body or in the laboratory). [NIH]

Incision: A cut made in the body during surgery. [NIH]

Indicative: That indicates; that points out more or less exactly; that reveals fairly clearly. [EU]

Induction: The act or process of inducing or causing to occur, especially the production of a specific morphogenetic effect in the developing embryo through the influence of evocators or organizers, or the production of anaesthesia or unconsciousness by use of appropriate agents. [EU]

Infarction: A pathological process consisting of a sudden insufficient blood supply to an area, which results in necrosis of that area. It is usually caused by a thrombus, an embolus, or a vascular torsion. [NIH]

Infection: 1. Invasion and multiplication of microorganisms in body tissues, which may be clinically unapparent or result in local cellular injury due to competitive metabolism, toxins, intracellular replication, or antigen-antibody response. The infection may remain localized, subclinical, and temporary if the body's defensive mechanisms are effective. A local infection may persist and spread by extension to become an acute, subacute, or chronic clinical infection or disease state. A local infection may also become systemic when the microorganisms gain access to the lymphatic or vascular system. 2. An infectious disease. [EU]

Inflammation: A pathological process characterized by injury or destruction of tissues caused by a variety of cytologic and chemical reactions. It is usually manifested by typical signs of pain, heat, redness, swelling, and loss of function. [NIH]

Infusion: A method of putting fluids, including drugs, into the bloodstream. Also called intravenous infusion. [NIH]

Initiation: Mutation induced by a chemical reactive substance causing cell changes; being a step in a carcinogenic process. [NIH]

Inorganic: Pertaining to substances not of organic origin. [EU]

Inotropic: Affecting the force or energy of muscular contractions. [EU]

Inpatients: Persons admitted to health facilities which provide board and room, for the purpose of observation, care, diagnosis or treatment. [NIH]

Insomnia: Difficulty in going to sleep or getting enough sleep. [NIH]

Insulin: A protein hormone secreted by beta cells of the pancreas. Insulin plays a major role in the regulation of glucose metabolism, generally promoting the cellular utilization of glucose. It is also an important regulator of protein and lipid metabolism. Insulin is used as a drug to control insulin-dependent diabetes mellitus. [NIH]

Insulin-dependent diabetes mellitus: A disease characterized by high levels of blood glucose resulting from defects in insulin secretion, insulin action, or both. Autoimmune, genetic, and environmental factors are involved in the development of type I diabetes. [NIH]

Interferon: A biological response modifier (a substance that can improve the body's natural response to disease). Interferons interfere with the division of cancer cells and can slow tumor growth. There are several types of interferons, including interferon-alpha, -beta, and -gamma. These substances are normally produced by the body. They are also made in the laboratory for use in treating cancer and other diseases. [NIH]

Interferon-alpha: One of the type I interferons produced by peripheral blood leukocytes or

lymphoblastoid cells when exposed to live or inactivated virus, double-stranded RNA, or bacterial products. It is the major interferon produced by virus-induced leukocyte cultures and, in addition to its pronounced antiviral activity, it causes activation of NK cells. [NIH]

Interleukin-1: A soluble factor produced by monocytes, macrophages, and other cells which activates T-lymphocytes and potentiates their response to mitogens or antigens. IL-1 consists of two distinct forms, IL-1 alpha and IL-1 beta which perform the same functions but are distinct proteins. The biological effects of IL-1 include the ability to replace macrophage requirements for T-cell activation. The factor is distinct from interleukin-2. [NIH]

Interleukin-2: Chemical mediator produced by activated T lymphocytes and which regulates the proliferation of T cells, as well as playing a role in the regulation of NK cell activity. [NIH]

Intermittent: Occurring at separated intervals; having periods of cessation of activity. [EU]

Interstitial: Pertaining to or situated between parts or in the interspaces of a tissue. [EU]

Intestines: The section of the alimentary canal from the stomach to the anus. It includes the large intestine and small intestine. [NIH]

Intoxication: Poisoning, the state of being poisoned. [EU]

Intracellular: Inside a cell. [NIH]

Intracranial Hypertension: Increased pressure within the cranial vault. This may result from several conditions, including hydrocephalus; brain edema; intracranial masses; severe systemic hypertension; pseudotumor cerebri; and other disorders. [NIH]

Intracranial Hypotension: A condition in which there is a diminution or loss of muscular tonicity, in consequence of which the muscles may be stretched beyond their normal limits. [NIH]

Intramuscular: IM. Within or into muscle. [NIH]

Intraperitoneal: IP. Within the peritoneal cavity (the area that contains the abdominal organs). [NIH]

Intravascular: Within a vessel or vessels. [EU]

Intravenous: IV. Into a vein. [NIH]

Intrinsic: Situated entirely within or pertaining exclusively to a part. [EU]

Inulin: A starch found in the tubers and roots of many plants. Since it is hydrolyzable to fructose, it is classified as a fructosan. It has been used in physiologic investigation for determination of the rate of glomerular function. [NIH]

Invasive: 1. Having the quality of invasiveness. 2. Involving puncture or incision of the skin or insertion of an instrument or foreign material into the body; said of diagnostic techniques. [EU]

Involuntary: Reaction occurring without intention or volition. [NIH]

Ion Channels: Gated, ion-selective glycoproteins that traverse membranes. The stimulus for channel gating can be a membrane potential, drug, transmitter, cytoplasmic messenger, or a mechanical deformation. Ion channels which are integral parts of ionotropic neurotransmitter receptors are not included. [NIH]

Ions: An atom or group of atoms that have a positive or negative electric charge due to a gain (negative charge) or loss (positive charge) of one or more electrons. Atoms with a positive charge are known as cations; those with a negative charge are anions. [NIH]

Ischemia: Deficiency of blood in a part, due to functional constriction or actual obstruction of a blood vessel. [EU]

Jaundice: A clinical manifestation of hyperbilirubinemia, consisting of deposition of bile pigments in the skin, resulting in a yellowish staining of the skin and mucous membranes. [NIH]

Joint: The point of contact between elements of an animal skeleton with the parts that surround and support it. [NIH]

Kallidin: A decapeptide bradykinin homolog produced by the action of tissue and glandular kallikreins on low-molecular-weight kininogen. It is a smooth-muscle stimulant and hypotensive agent that functions through vasodilatation. [NIH]

Kb: A measure of the length of DNA fragments, 1 Kb = 1000 base pairs. The largest DNA fragments are up to 50 kilobases long. [NIH]

Kidney Disease: Any one of several chronic conditions that are caused by damage to the cells of the kidney. People who have had diabetes for a long time may have kidney damage. Also called nephropathy. [NIH]

Kidney Failure: The inability of a kidney to excrete metabolites at normal plasma levels under conditions of normal loading, or the inability to retain electrolytes under conditions of normal intake. In the acute form (kidney failure, acute), it is marked by uremia and usually by oliguria or anuria, with hyperkalemia and pulmonary edema. The chronic form (kidney failure, chronic) is irreversible and requires hemodialysis. [NIH]

Kidney Failure, Acute: A clinical syndrome characterized by a sudden decrease in glomerular filtration rate, often to values of less than 1 to 2 ml per minute. It is usually associated with oliguria (urine volumes of less than 400 ml per day) and is always associated with biochemical consequences of the reduction in glomerular filtration rate such as a rise in blood urea nitrogen (BUN) and serum creatinine concentrations. [NIH]

Kidney Failure, Chronic: An irreversible and usually progressive reduction in renal function in which both kidneys have been damaged by a variety of diseases to the extent that they are unable to adequately remove the metabolic products from the blood and regulate the body's electrolyte composition and acid-base balance. Chronic kidney failure requires hemodialysis or surgery, usually kidney transplantation. [NIH]

Kidney stone: A stone that develops from crystals that form in urine and build up on the inner surfaces of the kidney, in the renal pelvis, or in the ureters. [NIH]

Kinetic: Pertaining to or producing motion. [EU]

Labile: 1. Gliding; moving from point to point over the surface; unstable; fluctuating. 2. Chemically unstable. [EU]

Labyrinth: The internal ear; the essential part of the organ of hearing. It consists of an osseous and a membranous portion. [NIH]

Large Intestine: The part of the intestine that goes from the cecum to the rectum. The large intestine absorbs water from stool and changes it from a liquid to a solid form. The large intestine is 5 feet long and includes the appendix, cecum, colon, and rectum. Also called colon. [NIH]

Larynx: An irregularly shaped, musculocartilaginous tubular structure, lined with mucous membrane, located at the top of the trachea and below the root of the tongue and the hyoid bone. It is the essential sphincter guarding the entrance into the trachea and functioning secondarily as the organ of voice. [NIH]

Left ventricular assist device: A mechanical device used to increase the heart's pumping ability. [NIH]

Leptin: A 16-kD peptide hormone secreted from white adipocytes and implicated in the regulation of food intake and energy balance. Leptin provides the key afferent signal from

fat cells in the feedback system that controls body fat stores. [NIH]

Lesion: An area of abnormal tissue change. [NIH]

Lethal: Deadly, fatal. [EU]

Leucocyte: All the white cells of the blood and their precursors (myeloid cell series, lymphoid cell series) but commonly used to indicate granulocytes exclusive of lymphocytes. [NIH]

Leukocytes: White blood cells. These include granular leukocytes (basophils, eosinophils, and neutrophils) as well as non-granular leukocytes (lymphocytes and monocytes). [NIH]

Leukotrienes: A family of biologically active compounds derived from arachidonic acid by oxidative metabolism through the 5-lipoxygenase pathway. They participate in host defense reactions and pathophysiological conditions such as immediate hypersensitivity and inflammation. They have potent actions on many essential organs and systems, including the cardiovascular, pulmonary, and central nervous system as well as the gastrointestinal tract and the immune system. [NIH]

Levodopa: The naturally occurring form of dopa and the immediate precursor of dopamine. Unlike dopamine itself, it can be taken orally and crosses the blood-brain barrier. It is rapidly taken up by dopaminergic neurons and converted to dopamine. It is used for the treatment of parkinsonism and is usually given with agents that inhibit its conversion to dopamine outside of the central nervous system. [NIH]

Library Services: Services offered to the library user. They include reference and circulation. [NIH]

Ligaments: Shiny, flexible bands of fibrous tissue connecting together articular extremities of bones. They are pliant, tough, and inextensile. [NIH]

Ligation: Application of a ligature to tie a vessel or strangulate a part. [NIH]

Linkage: The tendency of two or more genes in the same chromosome to remain together from one generation to the next more frequently than expected according to the law of independent assortment. [NIH]

Lipid: Fat. [NIH]

Lipoprotein: Any of the lipid-protein complexes in which lipids are transported in the blood; lipoprotein particles consist of a spherical hydrophobic core of triglycerides or cholesterol esters surrounded by an amphipathic monolayer of phospholipids, cholesterol, and apolipoproteins; the four principal classes are high-density, low-density, and very-low-density lipoproteins and chylomicrons. [EU]

Lipoxygenase: An enzyme of the oxidoreductase class that catalyzes reactions between linoleate and other fatty acids and oxygen to form hydroperoxy-fatty acid derivatives. Related enzymes in this class include the arachidonate lipoxygenases, arachidonate 5-lipoxygenase, arachidonate 12-lipoxygenase, and arachidonate 15-lipoxygenase. EC 1.13.11.12. [NIH]

Liver: A large, glandular organ located in the upper abdomen. The liver cleanses the blood and aids in digestion by secreting bile. [NIH]

Lobe: A portion of an organ such as the liver, lung, breast, or brain. [NIH]

Localized: Cancer which has not metastasized yet. [NIH]

Lod: The lowest analyte content which, if actually present, will be detected with reasonable statistical certainty and can be identified according to the identification criteria of the method. If both accuracy and precision are constant over a concentration range. [NIH]

Lod Score: The total relative probability, expressed on a logarithmic scale, that a linkage

relationship exists among selected loci. Lod is an acronym for "logarithmic odds." [NIH]

Low-density lipoprotein: Lipoprotein that contains most of the cholesterol in the blood. LDL carries cholesterol to the tissues of the body, including the arteries. A high level of LDL increases the risk of heart disease. LDL typically contains 60 to 70 percent of the total serum cholesterol and both are directly correlated with CHD risk. [NIH]

Lymph: The almost colorless fluid that travels through the lymphatic system and carries cells that help fight infection and disease. [NIH]

Lymph node: A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Also known as a lymph gland. Lymph nodes are spread out along lymphatic vessels and contain many lymphocytes, which filter the lymphatic fluid (lymph). [NIH]

Lymphadenitis: Inflammation of the lymph nodes. [NIH]

Lymphangitis: Inflammation of a lymphatic vessel or vessels. Acute lymphangitis may result from spread of bacterial infection (most commonly beta-haemolytic streptococci) into the lymphatics, manifested by painful subcutaneous red streaks along the course of the vessels. [EU]

Lymphatic: The tissues and organs, including the bone marrow, spleen, thymus, and lymph nodes, that produce and store cells that fight infection and disease. [NIH]

Lymphatic system: The tissues and organs that produce, store, and carry white blood cells that fight infection and other diseases. This system includes the bone marrow, spleen, thymus, lymph nodes and a network of thin tubes that carry lymph and white blood cells. These tubes branch, like blood vessels, into all the tissues of the body. [NIH]

Lymphoid: Referring to lymphocytes, a type of white blood cell. Also refers to tissue in which lymphocytes develop. [NIH]

Lysine: An essential amino acid. It is often added to animal feed. [NIH]

Macrophage: A type of white blood cell that surrounds and kills microorganisms, removes dead cells, and stimulates the action of other immune system cells. [NIH]

Maintenance therapy: Treatment that is given to help a primary (original) treatment keep working. Maintenance therapy is often given to help keep cancer in remission. [NIH]

Malignant: Cancerous; a growth with a tendency to invade and destroy nearby tissue and spread to other parts of the body. [NIH]

Malnutrition: A condition caused by not eating enough food or not eating a balanced diet. [NIH]

Mammary: Pertaining to the mamma, or breast. [EU]

Mannans: Polysaccharides consisting of mannose units. [NIH]

Meat: The edible portions of any animal used for food including domestic mammals (the major ones being cattle, swine, and sheep) along with poultry, fish, shellfish, and game. [NIH]

Meatus: A canal running from the internal auditory foramen through the petrous portion of the temporal bone. It gives passage to the facial and auditory nerves together with the auditory branch of the basilar artery and the internal auditory veins. [NIH]

Median Nerve: A major nerve of the upper extremity. In humans, the fibers of the median nerve originate in the lower cervical and upper thoracic spinal cord (usually C6 to T1), travel via the brachial plexus, and supply sensory and motor innervation to parts of the forearm and hand. [NIH]

Mediate: Indirect; accomplished by the aid of an intervening medium. [EU]

Mediator: An object or substance by which something is mediated, such as (1) a structure of the nervous system that transmits impulses eliciting a specific response; (2) a chemical substance (transmitter substance) that induces activity in an excitable tissue, such as nerve or muscle; or (3) a substance released from cells as the result of the interaction of antigen with antibody or by the action of antigen with a sensitized lymphocyte. [EU]

MEDLINE: An online database of MEDLARS, the computerized bibliographic Medical Literature Analysis and Retrieval System of the National Library of Medicine. [NIH]

Meiosis: A special method of cell division, occurring in maturation of the germ cells, by means of which each daughter nucleus receives half the number of chromosomes characteristic of the somatic cells of the species. [NIH]

Melanin: The substance that gives the skin its color. [NIH]

Membrane: A very thin layer of tissue that covers a surface. [NIH]

Memory: Complex mental function having four distinct phases: (1) memorizing or learning, (2) retention, (3) recall, and (4) recognition. Clinically, it is usually subdivided into immediate, recent, and remote memory. [NIH]

Meninges: The three membranes that cover and protect the brain and spinal cord. [NIH]

Meningitis: Inflammation of the meninges. When it affects the dura mater, the disease is termed pachymeningitis; when the arachnoid and pia mater are involved, it is called leptomeningitis, or meningitis proper. [EU]

Mental Disorders: Psychiatric illness or diseases manifested by breakdowns in the adaptational process expressed primarily as abnormalities of thought, feeling, and behavior producing either distress or impairment of function. [NIH]

Mental Health: The state wherein the person is well adjusted. [NIH]

Mental Processes: Conceptual functions or thinking in all its forms. [NIH]

Mercury: A silver metallic element that exists as a liquid at room temperature. It has the atomic symbol Hg (from hydrargyrum, liquid silver), atomic number 80, and atomic weight 200.59. Mercury is used in many industrial applications and its salts have been employed therapeutically as purgatives, antisyphilitics, disinfectants, and astringents. It can be absorbed through the skin and mucous membranes which leads to mercury poisoning. Because of its toxicity, the clinical use of mercury and mercurials is diminishing. [NIH]

Metabolite: Any substance produced by metabolism or by a metabolic process. [EU]

Metastasis: The spread of cancer from one part of the body to another. Tumors formed from cells that have spread are called "secondary tumors" and contain cells that are like those in the original (primary) tumor. The plural is metastases. [NIH]

MI: Myocardial infarction. Gross necrosis of the myocardium as a result of interruption of the blood supply to the area; it is almost always caused by atherosclerosis of the coronary arteries, upon which coronary thrombosis is usually superimposed. [NIH]

Microbe: An organism which cannot be observed with the naked eye; e. g. unicellular animals, lower algae, lower fungi, bacteria. [NIH]

Micro-organism: An organism which cannot be observed with the naked eye; e. g. unicellular animals, lower algae, lower fungi, bacteria. [NIH]

Microtubules: Slender, cylindrical filaments found in the cytoskeleton of plant and animal cells. They are composed of the protein tubulin. [NIH]

Midodrine: An ethanolamine derivative that is an adrenergic alpha agonist. It is used as a vasoconstrictor agent in the treatment of hypotension. [NIH]

Mitochondrial Swelling: Increase in volume of mitochondria due to an influx of fluid; it

occurs in hypotonic solutions due to osmotic pressure and in isotonic solutions as a result of altered permeability of the membranes of respiring mitochondria. [NIH]

Mitotic: Cell resulting from mitosis. [NIH]

Modification: A change in an organism, or in a process in an organism, that is acquired from its own activity or environment. [NIH]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Molecule: A chemical made up of two or more atoms. The atoms in a molecule can be the same (an oxygen molecule has two oxygen atoms) or different (a water molecule has two hydrogen atoms and one oxygen atom). Biological molecules, such as proteins and DNA, can be made up of many thousands of atoms. [NIH]

Monitor: An apparatus which automatically records such physiological signs as respiration, pulse, and blood pressure in an anesthetized patient or one undergoing surgical or other procedures. [NIH]

Monoamine: Enzyme that breaks down dopamine in the astrocytes and microglia. [NIH]

Monoamine Oxidase: An enzyme that catalyzes the oxidative deamination of naturally occurring monoamines. It is a flavin-containing enzyme that is localized in mitochondrial membranes, whether in nerve terminals, the liver, or other organs. Monoamine oxidase is important in regulating the metabolic degradation of catecholamines and serotonin in neural or target tissues. Hepatic monoamine oxidase has a crucial defensive role in inactivating circulating monoamines or those, such as tyramine, that originate in the gut and are absorbed into the portal circulation. (From Goodman and Gilman's, The Pharmacological Basis of Therapeutics, 8th ed, p415) EC 1.4.3.4. [NIH]

Monocytes: Large, phagocytic mononuclear leukocytes produced in the vertebrate bone marrow and released into the blood; contain a large, oval or somewhat indented nucleus surrounded by voluminous cytoplasm and numerous organelles. [NIH]

Mononuclear: A cell with one nucleus. [NIH]

Monophosphate: So called second messenger for neurotransmitters and hormones. [NIH]

Morphological: Relating to the configuration or the structure of live organs. [NIH]

Motility: The ability to move spontaneously. [EU]

Motion Sickness: Sickness caused by motion, as sea sickness, train sickness, car sickness, and air sickness. [NIH]

Multivalent: Pertaining to a group of 5 or more homologous or partly homologous chromosomes during the zygotene stage of prophase to first metaphasis in meiosis. [NIH]

Myocardial infarction: Gross necrosis of the myocardium as a result of interruption of the blood supply to the area; it is almost always caused by atherosclerosis of the coronary arteries, upon which coronary thrombosis is usually superimposed. [NIH]

Myocardial Ischemia: A disorder of cardiac function caused by insufficient blood flow to the muscle tissue of the heart. The decreased blood flow may be due to narrowing of the coronary arteries (coronary arteriosclerosis), to obstruction by a thrombus (coronary thrombosis), or less commonly, to diffuse narrowing of arterioles and other small vessels within the heart. Severe interruption of the blood supply to the myocardial tissue may result in necrosis of cardiac muscle (myocardial infarction). [NIH]

Myocardium: The muscle tissue of the heart composed of striated, involuntary muscle known as cardiac muscle. [NIH]

Natriuresis: The excretion of abnormal amounts of sodium in the urine. [EU]

Nausea: An unpleasant sensation in the stomach usually accompanied by the urge to vomit.

Common causes are early pregnancy, sea and motion sickness, emotional stress, intense pain, food poisoning, and various enteroviruses. [NIH]

NCI: National Cancer Institute. NCI, part of the National Institutes of Health of the United States Department of Health and Human Services, is the federal government's principal agency for cancer research. NCI conducts, coordinates, and funds cancer research, training, health information dissemination, and other programs with respect to the cause, diagnosis, prevention, and treatment of cancer. Access the NCI Web site at http://cancer.gov. [NIH]

Necrosis: A pathological process caused by the progressive degradative action of enzymes that is generally associated with severe cellular trauma. It is characterized by mitochondrial swelling, nuclear flocculation, uncontrolled cell lysis, and ultimately cell death. [NIH]

Need: A state of tension or dissatisfaction felt by an individual that impels him to action toward a goal he believes will satisfy the impulse. [NIH]

Neoplasia: Abnormal and uncontrolled cell growth. [NIH]

Nephrologist: A doctor who treats patients with kidney problems or hypertension. [NIH]

Nephropathy: Disease of the kidneys. [EU]

Nerve: A cordlike structure of nervous tissue that connects parts of the nervous system with other tissues of the body and conveys nervous impulses to, or away from, these tissues. [NIH]

Nerve Endings: Specialized terminations of peripheral neurons. Nerve endings include neuroeffector junction(s) by which neurons activate target organs and sensory receptors which transduce information from the various sensory modalities and send it centrally in the nervous system. Presynaptic nerve endings are presynaptic terminals. [NIH]

Nervous System: The entire nerve apparatus composed of the brain, spinal cord, nerves and ganglia. [NIH]

Neural: 1. Pertaining to a nerve or to the nerves. 2. Situated in the region of the spinal axis, as the neutral arch. [EU]

Neuroeffector Junction: The synapse between a neuron (presynaptic) and an effector cell other than another neuron (postsynaptic). Neuroeffector junctions include synapses onto muscles and onto secretory cells. [NIH]

Neurogenic: Loss of bladder control caused by damage to the nerves controlling the bladder. [NIH]

Neurologic: Having to do with nerves or the nervous system. [NIH]

Neuromuscular: Pertaining to muscles and nerves. [EU]

Neuromuscular Junction: The synapse between a neuron and a muscle. [NIH]

Neurons: The basic cellular units of nervous tissue. Each neuron consists of a body, an axon, and dendrites. Their purpose is to receive, conduct, and transmit impulses in the nervous system. [NIH]

Neuropathy: A problem in any part of the nervous system except the brain and spinal cord. Neuropathies can be caused by infection, toxic substances, or disease. [NIH]

Neurophysiology: The scientific discipline concerned with the physiology of the nervous system. [NIH]

Neurotransmitters: Endogenous signaling molecules that alter the behavior of neurons or effector cells. Neurotransmitter is used here in its most general sense, including not only messengers that act directly to regulate ion channels, but also those that act through second messenger systems, and those that act at a distance from their site of release. Included are neuromodulators, neuroregulators, neuromediators, and neurohumors, whether or not acting at synapses. [NIH]

Neutropenia: An abnormal decrease in the number of neutrophils, a type of white blood cell. [NIH]

Neutrophils: Granular leukocytes having a nucleus with three to five lobes connected by slender threads of chromatin, and cytoplasm containing fine inconspicuous granules and stainable by neutral dyes. [NIH]

Nitrates: Inorganic or organic salts and esters of nitric acid. These compounds contain the NO3- radical. [NIH]

Nitric acid: A toxic, corrosive, colorless liquid used to make fertilizers, dyes, explosives, and other chemicals. [NIH]

Nitric Oxide: A free radical gas produced endogenously by a variety of mammalian cells. It is synthesized from arginine by a complex reaction, catalyzed by nitric oxide synthase. Nitric oxide is endothelium-derived relaxing factor. It is released by the vascular endothelium and mediates the relaxation induced by some vasodilators such as acetylcholine and bradykinin. It also inhibits platelet aggregation, induces disaggregation of aggregated platelets, and inhibits platelet adhesion to the vascular endothelium. Nitric oxide activates cytosolic guanylate cyclase and thus elevates intracellular levels of cyclic GMP. [NIH]

Nitrogen: An element with the atomic symbol N, atomic number 7, and atomic weight 14. Nitrogen exists as a diatomic gas and makes up about 78% of the earth's atmosphere by volume. It is a constituent of proteins and nucleic acids and found in all living cells. [NIH]

Nitrogen Oxides: Inorganic oxides that contain nitrogen. [NIH]

Nitroglycerin: A highly volatile organic nitrate that acts as a dilator of arterial and venous smooth muscle and is used in the treatment of angina. It provides relief through improvement of the balance between myocardial oxygen supply and demand. Although total coronary blood flow is not increased, there is redistribution of blood flow in the heart when partial occlusion of coronary circulation is effected. [NIH]

Nitroprusside: (OC-6-22)-Pentakis(cyano-C)nitrosoferrate(2-). A powerful vasodilator used in emergencies to lower blood pressure or to improve cardiac function. It is also an indicator for free sulfhydryl groups in proteins. [NIH]

Norepinephrine: Precursor of epinephrine that is secreted by the adrenal medulla and is a widespread central and autonomic neurotransmitter. Norepinephrine is the principal transmitter of most postganglionic sympathetic fibers and of the diffuse projection system in the brain arising from the locus ceruleus. It is also found in plants and is used pharmacologically as a sympathomimetic. [NIH]

Normotensive: 1. Characterized by normal tone, tension, or pressure, as by normal blood pressure. 2. A person with normal blood pressure. [EU]

Nuclear: A test of the structure, blood flow, and function of the kidneys. The doctor injects a mildly radioactive solution into an arm vein and uses x-rays to monitor its progress through the kidneys. [NIH]

Nucleic acid: Either of two types of macromolecule (DNA or RNA) formed by polymerization of nucleotides. Nucleic acids are found in all living cells and contain the information (genetic code) for the transfer of genetic information from one generation to the next. [NIH]

Nucleus: A body of specialized protoplasm found in nearly all cells and containing the chromosomes. [NIH]

Nutritional Status: State of the body in relation to the consumption and utilization of nutrients. [NIH]

Nutritional Support: The administration of nutrients for assimilation and utilization by a patient by means other than normal eating. It does not include fluid therapy which normalizes body fluids to restore water-electrolyte balance. [NIH]

Odds Ratio: The ratio of two odds. The exposure-odds ratio for case control data is the ratio of the odds in favor of exposure among cases to the odds in favor of exposure among noncases. The disease-odds ratio for a cohort or cross section is the ratio of the odds in favor of disease among the exposed to the odds in favor of disease among the unexposed. The prevalence-odds ratio refers to an odds ratio derived cross-sectionally from studies of prevalent cases. [NIH]

Odour: A volatile emanation that is perceived by the sense of smell. [EU]

Oliguria: Clinical manifestation of the urinary system consisting of a decrease in the amount of urine secreted. [NIH]

Opportunistic Infections: An infection caused by an organism which becomes pathogenic under certain conditions, e.g., during immunosuppression. [NIH]

Optic Disk: The portion of the optic nerve seen in the fundus with the ophthalmoscope. It is formed by the meeting of all the retinal ganglion cell axons as they enter the optic nerve. [NIH]

Ornithine: An amino acid produced in the urea cycle by the splitting off of urea from arginine. [NIH]

Orthostatic: Pertaining to or caused by standing erect. [EU]

Osmolarity: The concentration of osmotically active particles expressed in terms of osmoles of solute per litre of solution. [EU]

Osmoles: The standard unit of osmotic pressure. [NIH]

Ossicles: The hammer, anvil and stirrup, the small bones of the middle ear, which transmit the vibrations from the tympanic membrane to the oval window. [NIH]

Otolaryngology: A surgical specialty concerned with the study and treatment of disorders of the ear, nose, and throat. [NIH]

Otosclerosis: The formation of spongy bone in the labyrinth capsule. The ossicles can become fixed and unable to transmit sound vibrations, thereby causing deafness. [NIH]

Outpatient: A patient who is not an inmate of a hospital but receives diagnosis or treatment in a clinic or dispensary connected with the hospital. [NIH]

Overdose: An accidental or deliberate dose of a medication or street drug that is in excess of what is normally used. [NIH]

Oxidation: The act of oxidizing or state of being oxidized. Chemically it consists in the increase of positive charges on an atom or the loss of negative charges. Most biological oxidations are accomplished by the removal of a pair of hydrogen atoms (dehydrogenation) from a molecule. Such oxidations must be accompanied by reduction of an acceptor molecule. Univalent o. indicates loss of one electron; divalent o., the loss of two electrons. [EU]

Oxidative metabolism: A chemical process in which oxygen is used to make energy from carbohydrates (sugars). Also known as aerobic respiration, cell respiration, or aerobic metabolism. [NIH]

Oxides: Binary compounds of oxygen containing the anion O(2-). The anion combines with metals to form alkaline oxides and non-metals to form acidic oxides. [NIH]

Oxygen Consumption: The oxygen consumption is determined by calculating the difference between the amount of oxygen inhaled and exhaled. [NIH]

Oxygenation: The process of supplying, treating, or mixing with oxygen. No:1245 - oxygenation the process of supplying, treating, or mixing with oxygen. [EU]

Pacemaker: An object or substance that influences the rate at which a certain phenomenon occurs; often used alone to indicate the natural cardiac pacemaker or an artificial cardiac pacemaker. In biochemistry, a substance whose rate of reaction sets the pace for a series of interrelated reactions. [EU]

Pachymeningitis: Inflammation of the dura mater of the brain, the spinal cord or the optic nerve. [NIH]

Paclitaxel: Antineoplastic agent isolated from the bark of the Pacific yew tree, Taxus brevifolia. Paclitaxel stabilizes microtubules in their polymerized form and thus mimics the action of the proto-oncogene proteins c-mos. [NIH]

Palliative: 1. Affording relief, but not cure. 2. An alleviating medicine. [EU]

Pancreas: A mixed exocrine and endocrine gland situated transversely across the posterior abdominal wall in the epigastric and hypochondriac regions. The endocrine portion is comprised of the Islets of Langerhans, while the exocrine portion is a compound acinar gland that secretes digestive enzymes. [NIH]

Pancreatic: Having to do with the pancreas. [NIH]

Parenteral: Not through the alimentary canal but rather by injection through some other route, as subcutaneous, intramuscular, intraorbital, intracapsular, intraspinal, intrasternal, intravenous, etc. [EU]

Parkinsonism: A group of neurological disorders characterized by hypokinesia, tremor, and muscular rigidity. [EU]

Paroxetine: A serotonin uptake inhibitor that is effective in the treatment of depression. [NIH]

Paroxysmal: Recurring in paroxysms (= spasms or seizures). [EU]

Pathogenesis: The cellular events and reactions that occur in the development of disease. [NIH]

Pathologic: 1. Indicative of or caused by a morbid condition. 2. Pertaining to pathology (= branch of medicine that treats the essential nature of the disease, especially the structural and functional changes in tissues and organs of the body caused by the disease). [EU]

Pathophysiology: Altered functions in an individual or an organ due to disease. [NIH]

Patient Education: The teaching or training of patients concerning their own health needs. [NIH]

Penis: The external reproductive organ of males. It is composed of a mass of erectile tissue enclosed in three cylindrical fibrous compartments. Two of the three compartments, the corpus cavernosa, are placed side-by-side along the upper part of the organ. The third compartment below, the corpus spongiosum, houses the urethra. [NIH]

Pepsin: An enzyme made in the stomach that breaks down proteins. [NIH]

Pepsin A: Formed from pig pepsinogen by cleavage of one peptide bond. The enzyme is a single polypeptide chain and is inhibited by methyl 2-diaazoacetamidohexanoate. It cleaves peptides preferentially at the carbonyl linkages of phenylalanine or leucine and acts as the principal digestive enzyme of gastric juice. [NIH]

Peptic: Pertaining to pepsin or to digestion; related to the action of gastric juices. [EU]

Peptic Ulcer: Ulcer that occurs in those portions of the alimentary tract which come into contact with gastric juice containing pepsin and acid. It occurs when the amount of acid and pepsin is sufficient to overcome the gastric mucosal barrier. [NIH]

Peptide: Any compound consisting of two or more amino acids, the building blocks of proteins. Peptides are combined to make proteins. [NIH]

Perception: The ability quickly and accurately to recognize similarities and differences among presented objects, whether these be pairs of words, pairs of number series, or multiple sets of these or other symbols such as geometric figures. [NIH]

Percutaneous: Performed through the skin, as injection of radiopacque material in radiological examination, or the removal of tissue for biopsy accomplished by a needle. [EU]

Perforation: 1. The act of boring or piercing through a part. 2. A hole made through a part or substance. [EU]

Perfusion: Bathing an organ or tissue with a fluid. In regional perfusion, a specific area of the body (usually an arm or a leg) receives high doses of anticancer drugs through a blood vessel. Such a procedure is performed to treat cancer that has not spread. [NIH]

Perinatal: Pertaining to or occurring in the period shortly before and after birth; variously defined as beginning with completion of the twentieth to twenty-eighth week of gestation and ending 7 to 28 days after birth. [EU]

Peripheral blood: Blood circulating throughout the body. [NIH]

Peritoneal: Having to do with the peritoneum (the tissue that lines the abdominal wall and covers most of the organs in the abdomen). [NIH]

Peritoneal Cavity: The space enclosed by the peritoneum. It is divided into two portions, the greater sac and the lesser sac or omental bursa, which lies behind the stomach. The two sacs are connected by the foramen of Winslow, or epiploic foramen. [NIH]

Peritoneal Dialysis: Dialysis fluid being introduced into and removed from the peritoneal cavity as either a continuous or an intermittent procedure. [NIH]

Peritoneum: Endothelial lining of the abdominal cavity, the parietal peritoneum covering the inside of the abdominal wall and the visceral peritoneum covering the bowel, the mesentery, and certain of the organs. The portion that covers the bowel becomes the serosal layer of the bowel wall. [NIH]

Peritonitis: Inflammation of the peritoneum; a condition marked by exudations in the peritoneum of serum, fibrin, cells, and pus. It is attended by abdominal pain and tenderness, constipation, vomiting, and moderate fever. [EU]

Pharmacokinetic: The mathematical analysis of the time courses of absorption, distribution, and elimination of drugs. [NIH]

Pharmacologic: Pertaining to pharmacology or to the properties and reactions of drugs. [EU]

Pharynx: The hollow tube about 5 inches long that starts behind the nose and ends at the top of the trachea (windpipe) and esophagus (the tube that goes to the stomach). [NIH]

Phenylalanine: An aromatic amino acid that is essential in the animal diet. It is a precursor of melanin, dopamine, noradrenalin, and thyroxine. [NIH]

Phosphodiesterase: Effector enzyme that regulates the levels of a second messenger, the cyclic GMP. [NIH]

Phosphorus: A non-metallic element that is found in the blood, muscles, nevers, bones, and teeth, and is a component of adenosine triphosphate (ATP; the primary energy source for the body's cells.) [NIH]

Physical Examination: Systematic and thorough inspection of the patient for physical signs of disease or abnormality. [NIH]

Physiologic: Having to do with the functions of the body. When used in the phrase "physiologic age," it refers to an age assigned by general health, as opposed to calendar age.

[NIH]

Pigment: A substance that gives color to tissue. Pigments are responsible for the color of skin, eyes, and hair. [NIH]

Pilot study: The initial study examining a new method or treatment. [NIH]

Plants: Multicellular, eukaryotic life forms of the kingdom Plantae. They are characterized by a mainly photosynthetic mode of nutrition; essentially unlimited growth at localized regions of cell divisions (meristems); cellulose within cells providing rigidity; the absence of organs of locomotion; absense of nervous and sensory systems; and an alteration of haploid and diploid generations. [NIH]

Plaque: A clear zone in a bacterial culture grown on an agar plate caused by localized destruction of bacterial cells by a bacteriophage. The concentration of infective virus in a fluid can be estimated by applying the fluid to a culture and counting the number of. [NIH]

Plasma: The clear, yellowish, fluid part of the blood that carries the blood cells. The proteins that form blood clots are in plasma. [NIH]

Plasma cells: A type of white blood cell that produces antibodies. [NIH]

Plasma protein: One of the hundreds of different proteins present in blood plasma, including carrier proteins (such albumin, transferrin, and haptoglobin), fibrinogen and other coagulation factors, complement components, immunoglobulins, enzyme inhibitors, precursors of substances such as angiotension and bradykinin, and many other types of proteins. [EU]

Plasma Volume: Volume of plasma in the circulation. It is usually measured by indicator dilution techniques. [NIH]

Plasmin: A product of the lysis of plasminogen (profibrinolysin) by plasminogen activators. It is composed of two polypeptide chains, light (B) and heavy (A), with a molecular weight of 75,000. It is the major proteolytic enzyme involved in blood clot retraction or the lysis of fibrin and quickly inactivated by antiplasmins. EC 3.4.21.7. [NIH]

Plasminogen: Precursor of fibrinolysin (plasmin). It is a single-chain beta-globulin of molecular weight 80-90,000 found mostly in association with fibrinogen in plasma; plasminogen activators change it to fibrinolysin. It is used in wound debriding and has been investigated as a thrombolytic agent. [NIH]

Plasminogen Activators: A heterogeneous group of proteolytic enzymes that convert plasminogen to plasmin. They are concentrated in the lysosomes of most cells and in the vascular endothelium, particularly in the vessels of the microcirculation. EC 3.4.21.-. [NIH]

Platelet Activating Factor: A phospholipid derivative formed by platelets, basophils, neutrophils, monocytes, and macrophages. It is a potent platelet aggregating agent and inducer of systemic anaphylactic symptoms, including hypotension, thrombocytopenia, neutropenia, and bronchoconstriction. [NIH]

Platelet Aggregation: The attachment of platelets to one another. This clumping together can be induced by a number of agents (e.g., thrombin, collagen) and is part of the mechanism leading to the formation of a thrombus. [NIH]

Platelets: A type of blood cell that helps prevent bleeding by causing blood clots to form. Also called thrombocytes. [NIH]

Platinum: Platinum. A heavy, soft, whitish metal, resembling tin, atomic number 78, atomic weight 195.09, symbol Pt. (From Dorland, 28th ed) It is used in manufacturing equipment for laboratory and industrial use. It occurs as a black powder (platinum black) and as a spongy substance (spongy platinum) and may have been known in Pliny's time as "alutiae". [NIH]

Podophyllotoxin: The main active constituent of the resin from the roots of may apple or mandrake (Podophyllum peltatum and P. emodi). It is a potent spindle poison, toxic if taken internally, and has been used as a cathartic. It is very irritating to skin and mucous membranes, has keratolytic actions, has been used to treat warts and keratoses, and may have antineoplastic properties, as do some of its congeners and derivatives. [NIH]

Poisoning: A condition or physical state produced by the ingestion, injection or inhalation of, or exposure to a deleterious agent. [NIH]

Polycystic: An inherited disorder characterized by many grape-like clusters of fluid-filled cysts that make both kidneys larger over time. These cysts take over and destroy working kidney tissue. PKD may cause chronic renal failure and end-stage renal disease. [NIH]

Postprandial: Occurring after dinner, or after a meal; postcibal. [EU]

Postural: Pertaining to posture or position. [EU]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Potentiate: A degree of synergism which causes the exposure of the organism to a harmful substance to worsen a disease already contracted. [NIH]

Practice Guidelines: Directions or principles presenting current or future rules of policy for the health care practitioner to assist him in patient care decisions regarding diagnosis, therapy, or related clinical circumstances. The guidelines may be developed by government agencies at any level, institutions, professional societies, governing boards, or by the convening of expert panels. The guidelines form a basis for the evaluation of all aspects of health care and delivery. [NIH]

Preclinical: Before a disease becomes clinically recognizable. [EU]

Precursor: Something that precedes. In biological processes, a substance from which another, usually more active or mature substance is formed. In clinical medicine, a sign or symptom that heralds another. [EU]

Preeclampsia: A toxaemia of late pregnancy characterized by hypertension, edema, and proteinuria, when convulsions and coma are associated, it is called eclampsia. [EU]

Presynaptic: Situated proximal to a synapse, or occurring before the synapse is crossed. [EU]

Presynaptic Terminals: The distal terminations of axons which are specialized for the release of neurotransmitters. Also included are varicosities along the course of axons which have similar specializations and also release transmitters. Presynaptic terminals in both the central and peripheral nervous systems are included. [NIH]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which refers to the number of new cases in the population at a given time. [NIH]

Progression: Increase in the size of a tumor or spread of cancer in the body. [NIH]

Progressive: Advancing; going forward; going from bad to worse; increasing in scope or severity. [EU]

Prolapse: The protrusion of an organ or part of an organ into a natural or artificial orifice. [NIH]

Prone: Having the front portion of the body downwards. [NIH]

Prone Position: The posture of an individual lying face down. [NIH]

Prophase: The first phase of cell division, in which the chromosomes become visible, the

nucleus starts to lose its identity, the spindle appears, and the centrioles migrate toward opposite poles. [NIH]

Prophylaxis: An attempt to prevent disease. [NIH]

Proportional: Being in proportion : corresponding in size, degree, or intensity, having the same or a constant ratio; of, relating to, or used in determining proportions. [EU]

Prospective study: An epidemiologic study in which a group of individuals (a cohort), all free of a particular disease and varying in their exposure to a possible risk factor, is followed over a specific amount of time to determine the incidence rates of the disease in the exposed and unexposed groups. [NIH]

Prostaglandin: Any of a group of components derived from unsaturated 20-carbon fatty acids, primarily arachidonic acid, via the cyclooxygenase pathway that are extremely potent mediators of a diverse group of physiologic processes. The abbreviation for prostaglandin is PG; specific compounds are designated by adding one of the letters A through I to indicate the type of substituents found on the hydrocarbon skeleton and a subscript (1, 2 or 3) to indicate the number of double bonds in the hydrocarbon skeleton e.g., PGE2. The predominant naturally occurring prostaglandins all have two double bonds and are synthesized from arachidonic acid (5,8,11,14-eicosatetraenoic acid) by the pathway shown in the illustration. The 1 series and 3 series are produced by the same pathway with fatty acids having one fewer double bond (8,11,14-eicosatrienoic acid or one more double bond (5,8,11,14,17-eicosapentaenoic acid) than arachidonic acid. The subscript a or ß indicates the configuration at C-9 (a denotes a substituent below the plane of the ring, ß, above the plane). The naturally occurring PGF's have the a configuration, e.g., PGF2a. All of the prostaglandins act by binding to specific cell-surface receptors causing an increase in the level of the intracellular second messenger cyclic AMP (and in some cases cyclic GMP also). The effect produced by the cyclic AMP increase depends on the specific cell type. In some cases there is also a positive feedback effect. Increased cyclic AMP increases prostaglandin synthesis leading to further increases in cyclic AMP. [EU]

Prostate: A gland in males that surrounds the neck of the bladder and the urethra. It secretes a substance that liquifies coagulated semen. It is situated in the pelvic cavity behind the lower part of the pubic symphysis, above the deep layer of the triangular ligament, and rests upon the rectum. [NIH]

Prostatic Hyperplasia: Enlargement or overgrowth of the prostate gland as a result of an increase in the number of its constituent cells. [NIH]

Protective Agents: Synthetic or natural substances which are given to prevent a disease or disorder or are used in the process of treating a disease or injury due to a poisonous agent. [NIH]

Protein C: A vitamin-K dependent zymogen present in the blood, which, upon activation by thrombin and thrombomodulin exerts anticoagulant properties by inactivating factors Va and VIIIa at the rate-limiting steps of thrombin formation. [NIH]

Protein S: The vitamin K-dependent cofactor of activated protein C. Together with protein C, it inhibits the action of factors VIIIa and Va. A deficiency in protein S can lead to recurrent venous and arterial thrombosis. [NIH]

Proteins: Polymers of amino acids linked by peptide bonds. The specific sequence of amino acids determines the shape and function of the protein. [NIH]

Proteinuria: The presence of protein in the urine, indicating that the kidneys are not working properly. [NIH]

Proteolytic: 1. Pertaining to, characterized by, or promoting proteolysis. 2. An enzyme that promotes proteolysis (= the splitting of proteins by hydrolysis of the peptide bonds with

formation of smaller polypeptides). [EU]

Prothrombin: A plasma protein that is the inactive precursor of thrombin. It is converted to thrombin by a prothrombin activator complex consisting of factor Xa, factor V, phospholipid, and calcium ions. Deficiency of prothrombin leads to hypoprothrombinemia. [NIH]

Protons: Stable elementary particles having the smallest known positive charge, found in the nuclei of all elements. The proton mass is less than that of a neutron. A proton is the nucleus of the light hydrogen atom, i.e., the hydrogen ion. [NIH]

Proto-Oncogene Proteins: Products of proto-oncogenes. Normally they do not have oncogenic or transforming properties, but are involved in the regulation or differentiation of cell growth. They often have protein kinase activity. [NIH]

Proto-Oncogene Proteins c-mos: Cellular proteins encoded by the c-mos genes. They function in the cell cycle to maintain maturation promoting factor in the active state and have protein-serine/threonine kinase activity. Oncogenic transformation can take place when c-mos proteins are expressed at the wrong time. [NIH]

Proximal: Nearest; closer to any point of reference; opposed to distal. [EU]

Psychiatric: Pertaining to or within the purview of psychiatry. [EU]

Psychiatry: The medical science that deals with the origin, diagnosis, prevention, and treatment of mental disorders. [NIH]

Psychic: Pertaining to the psyche or to the mind; mental. [EU]

Psychogenic: Produced or caused by psychic or mental factors rather than organic factors. [EU]

Psychology: The science dealing with the study of mental processes and behavior in man and animals. [NIH]

Public Health: Branch of medicine concerned with the prevention and control of disease and disability, and the promotion of physical and mental health of the population on the international, national, state, or municipal level. [NIH]

Public Policy: A course or method of action selected, usually by a government, from among alternatives to guide and determine present and future decisions. [NIH]

Publishing: "The business or profession of the commercial production and issuance of literature" (Webster's 3d). It includes the publisher, publication processes, editing and editors. Production may be by conventional printing methods or by electronic publishing. [NIH]

Pulmonary: Relating to the lungs. [NIH]

Pulmonary Alveoli: Small polyhedral outpouchings along the walls of the alveolar sacs, alveolar ducts and terminal bronchioles through the walls of which gas exchange between alveolar air and pulmonary capillary blood takes place. [NIH]

Pulmonary Artery: The short wide vessel arising from the conus arteriosus of the right ventricle and conveying unaerated blood to the lungs. [NIH]

Pulmonary Edema: An accumulation of an excessive amount of watery fluid in the lungs, may be caused by acute exposure to dangerous concentrations of irritant gasses. [NIH]

Pulmonary Ventilation: The total volume of gas per minute inspired or expired measured in liters per minute. [NIH]

Pulsation: A throb or rhythmical beat, as of the heart. [EU]

Pulse: The rhythmical expansion and contraction of an artery produced by waves of pressure caused by the ejection of blood from the left ventricle of the heart as it contracts.

[NIH]

Purulent: Consisting of or containing pus; associated with the formation of or caused by pus. [EU]

Putrefaction: The process of decomposition of animal and vegetable matter by living organisms. [NIH]

Pyogenic: Producing pus; pyopoietic (= liquid inflammation product made up of cells and a thin fluid called liquor puris). [EU]

Quality of Life: A generic concept reflecting concern with the modification and enhancement of life attributes, e.g., physical, political, moral and social environment. [NIH]

Quaternary: 1. Fourth in order. 2. Containing four elements or groups. [EU]

Race: A population within a species which exhibits general similarities within itself, but is both discontinuous and distinct from other populations of that species, though not sufficiently so as to achieve the status of a taxon. [NIH]

Radiation: Emission or propagation of electromagnetic energy (waves/rays), or the waves/rays themselves; a stream of electromagnetic particles (electrons, neutrons, protons, alpha particles) or a mixture of these. The most common source is the sun. [NIH]

Radio Waves: That portion of the electromagnetic spectrum beyond the microwaves, with wavelengths as high as 30 KM. They are used in communications, including television. Short Wave or HF (high frequency), UHF (ultrahigh frequency) and VHF (very high frequency) waves are used in citizen's band communication. [NIH]

Radioactive: Giving off radiation. [NIH]

Radiological: Pertaining to radiodiagnostic and radiotherapeutic procedures, and interventional radiology or other planning and guiding medical radiology. [NIH]

Randomized: Describes an experiment or clinical trial in which animal or human subjects are assigned by chance to separate groups that compare different treatments. [NIH]

Randomized clinical trial: A study in which the participants are assigned by chance to separate groups that compare different treatments; neither the researchers nor the participants can choose which group. Using chance to assign people to groups means that the groups will be similar and that the treatments they receive can be compared objectively. At the time of the trial, it is not known which treatment is best. It is the patient's choice to be in a randomized trial. [NIH]

Reagent: A substance employed to produce a chemical reaction so as to detect, measure, produce, etc., other substances. [EU]

Receptor: A molecule inside or on the surface of a cell that binds to a specific substance and causes a specific physiologic effect in the cell. [NIH]

Receptors, Serotonin: Cell-surface proteins that bind serotonin and trigger intracellular changes which influence the behavior of cells. Several types of serotonin receptors have been recognized which differ in their pharmacology, molecular biology, and mode of action. [NIH]

Recombinant: A cell or an individual with a new combination of genes not found together in either parent; usually applied to linked genes. [EU]

Rectum: The last 8 to 10 inches of the large intestine. [NIH]

Red blood cells: RBCs. Cells that carry oxygen to all parts of the body. Also called erythrocytes. [NIH]

Refer: To send or direct for treatment, aid, information, de decision. [NIH]

Reflex: An involuntary movement or exercise of function in a part, excited in response to a

stimulus applied to the periphery and transmitted to the brain or spinal cord. [NIH]

Regimen: A treatment plan that specifies the dosage, the schedule, and the duration of treatment. [NIH]

Relapse: The return of signs and symptoms of cancer after a period of improvement. [NIH]

Relative risk: The ratio of the incidence rate of a disease among individuals exposed to a specific risk factor to the incidence rate among unexposed individuals; synonymous with risk ratio. Alternatively, the ratio of the cumulative incidence rate in the exposed to the cumulative incidence rate in the unexposed (cumulative incidence ratio). The term relative risk has also been used synonymously with odds ratio. This is because the odds ratio and relative risk approach each other if the disease is rare (5 percent of population) and the number of subjects is large. [NIH]

Remission: A decrease in or disappearance of signs and symptoms of cancer. In partial remission, some, but not all, signs and symptoms of cancer have disappeared. In complete remission, all signs and symptoms of cancer have disappeared, although there still may be cancer in the body. [NIH]

Renal failure: Progressive renal insufficiency and uremia, due to irreversible and progressive renal glomerular tubular or interstitial disease. [NIH]

Renal Osteodystrophy: Decalcification of bone due to hyperparathyroidism secondary to chronic kidney disease. [NIH]

Renal Replacement Therapy: Procedures which temporarily or permanently remedy insufficient cleansing of body fluids by the kidneys. [NIH]

Renin: An enzyme which is secreted by the kidney and is formed from prorenin in plasma and kidney. The enzyme cleaves the Leu-Leu bond in angiotensinogen to generate angiotensin I. EC 3.4.23.15. (Formerly EC 3.4.99.19). [NIH]

Renin-Angiotensin System: A system consisting of renin, angiotensin-converting enzyme, and angiotensin II. Renin, an enzyme produced in the kidney, acts on angiotensinogen, an alpha-2 globulin produced by the liver, forming angiotensin I. The converting enzyme contained in the lung acts on angiotensin I in the plasma converting it to angiotensin II, the most powerful directly pressor substance known. It causes contraction of the arteriolar smooth muscle and has other indirect actions mediated through the adrenal cortex. [NIH]

Respiration: The act of breathing with the lungs, consisting of inspiration, or the taking into the lungs of the ambient air, and of expiration, or the expelling of the modified air which contains more carbon dioxide than the air taken in (Blakiston's Gould Medical Dictionary, 4th ed.). This does not include tissue respiration (= oxygen consumption) or cell respiration (= cell respiration). [NIH]

Retina: The ten-layered nervous tissue membrane of the eye. It is continuous with the optic nerve and receives images of external objects and transmits visual impulses to the brain. Its outer surface is in contact with the choroid and the inner surface with the vitreous body. The outer-most layer is pigmented, whereas the inner nine layers are transparent. [NIH]

Retinal: 1. Pertaining to the retina. 2. The aldehyde of retinol, derived by the oxidative enzymatic splitting of absorbed dietary carotene, and having vitamin A activity. In the retina, retinal combines with opsins to form visual pigments. One isomer, 11-cis retinal combines with opsin in the rods (scotopsin) to form rhodopsin, or visual purple. Another, all-trans retinal (trans-r.); visual yellow; xanthopsin) results from the bleaching of rhodopsin by light, in which the 11-cis form is converted to the all-trans form. Retinal also combines with opsins in the cones (photopsins) to form the three pigments responsible for colour vision. Called also retinal, and retinene1. [EU]

Retinopathy: 1. Retinitis (= inflammation of the retina). 2. Retinosis (= degenerative, noninflammatory condition of the retina). [EU]

Retroperitoneal: Having to do with the area outside or behind the peritoneum (the tissue that lines the abdominal wall and covers most of the organs in the abdomen). [NIH]

Reversion: A return to the original condition, e. g. the reappearance of the normal or wild type in previously mutated cells, tissues, or organisms. [NIH]

Ribose: A pentose active in biological systems usually in its D-form. [NIH]

Risk factor: A habit, trait, condition, or genetic alteration that increases a person's chance of developing a disease. [NIH]

Rod: A reception for vision, located in the retina. [NIH]

Salivary: The duct that convey saliva to the mouth. [NIH]

Salivary glands: Glands in the mouth that produce saliva. [NIH]

Saphenous: Applied to certain structures in the leg, e. g. nerve vein. [NIH]

Saphenous Vein: The vein which drains the foot and leg. [NIH]

Schizoid: Having qualities resembling those found in greater degree in schizophrenics; a person of schizoid personality. [NIH]

Schizophrenia: A mental disorder characterized by a special type of disintegration of the personality. [NIH]

Schizotypal Personality Disorder: A personality disorder in which there are oddities of thought (magical thinking, paranoid ideation, suspiciousness), perception (illusions, depersonalization), speech (digressive, vague, overelaborate), and behavior (inappropriate affect in social interactions, frequently social isolation) that are not severe enough to characterize schizophrenia. [NIH]

Scleroderma: A chronic disorder marked by hardening and thickening of the skin. Scleroderma can be localized or it can affect the entire body (systemic). [NIH]

Screening: Checking for disease when there are no symptoms. [NIH]

Second Messenger Systems: Systems in which an intracellular signal is generated in response to an intercellular primary messenger such as a hormone or neurotransmitter. They are intermediate signals in cellular processes such as metabolism, secretion, contraction, phototransduction, and cell growth. Examples of second messenger systems are the adenyl cyclase-cyclic AMP system, the phosphatidylinositol diphosphate-inositol triphosphate system, and the cyclic GMP system. [NIH]

Secondary tumor: Cancer that has spread from the organ in which it first appeared to another organ. For example, breast cancer cells may spread (metastasize) to the lungs and cause the growth of a new tumor. When this happens, the disease is called metastatic breast cancer, and the tumor in the lungs is called a secondary tumor. Also called secondary cancer. [NIH]

Secretion: 1. The process of elaborating a specific product as a result of the activity of a gland; this activity may range from separating a specific substance of the blood to the elaboration of a new chemical substance. 2. Any substance produced by secretion. [EU]

Seizures: Clinical or subclinical disturbances of cortical function due to a sudden, abnormal, excessive, and disorganized discharge of brain cells. Clinical manifestations include abnormal motor, sensory and psychic phenomena. Recurrent seizures are usually referred to as epilepsy or "seizure disorder." [NIH]

Semisynthetic: Produced by chemical manipulation of naturally occurring substances. [EU]

Senile: Relating or belonging to old age; characteristic of old age; resulting from infirmity of old age. [NIH]

Sensibility: The ability to receive, feel and appreciate sensations and impressions; the quality of being sensitive; the extend to which a method gives results that are free from false negatives. [NIH]

Sensor: A device designed to respond to physical stimuli such as temperature, light, magnetism or movement and transmit resulting impulses for interpretation, recording, movement, or operating control. [NIH]

Sepsis: The presence of bacteria in the bloodstream. [NIH]

Septic: Produced by or due to decomposition by microorganisms; putrefactive. [EU]

Septicaemia: A term originally used to denote a putrefactive process in the body, but now usually referring to infection with pyogenic micro-organisms; a genus of Diptera; the severe type of infection in which the blood stream is invaded by large numbers of the causal. [NIH]

Sequence Analysis: A multistage process that includes the determination of a sequence (protein, carbohydrate, etc.), its fragmentation and analysis, and the interpretation of the resulting sequence information. [NIH]

Serotonin: A biochemical messenger and regulator, synthesized from the essential amino acid L-tryptophan. In humans it is found primarily in the central nervous system, gastrointestinal tract, and blood platelets. Serotonin mediates several important physiological functions including neurotransmission, gastrointestinal motility, hemostasis, and cardiovascular integrity. Multiple receptor families (receptors, serotonin) explain the broad physiological actions and distribution of this biochemical mediator. [NIH]

Serous: Having to do with serum, the clear liquid part of blood. [NIH]

Serum: The clear liquid part of the blood that remains after blood cells and clotting proteins have been removed. [NIH]

Shock: The general bodily disturbance following a severe injury; an emotional or moral upset occasioned by some disturbing or unexpected experience; disruption of the circulation, which can upset all body functions: sometimes referred to as circulatory shock. [NIH]

Side effect: A consequence other than the one(s) for which an agent or measure is used, as the adverse effects produced by a drug, especially on a tissue or organ system other than the one sought to be benefited by its administration. [EU]

Signs and Symptoms: Clinical manifestations that can be either objective when observed by a physician, or subjective when perceived by the patient. [NIH]

Skeleton: The framework that supports the soft tissues of vertebrate animals and protects many of their internal organs. The skeletons of vertebrates are made of bone and/or cartilage. [NIH]

Sleep apnea: A serious, potentially life-threatening breathing disorder characterized by repeated cessation of breathing due to either collapse of the upper airway during sleep or absence of respiratory effort. [NIH]

Smooth muscle: Muscle that performs automatic tasks, such as constricting blood vessels. [NIH]

Social Environment: The aggregate of social and cultural institutions, forms, patterns, and processes that influence the life of an individual or community. [NIH]

Socioeconomic Factors: Social and economic factors that characterize the individual or group within the social structure. [NIH]

Sodium: An element that is a member of the alkali group of metals. It has the atomic symbol Na, atomic number 11, and atomic weight 23. With a valence of 1, it has a strong affinity for oxygen and other nonmetallic elements. Sodium provides the chief cation of the extracellular body fluids. Its salts are the most widely used in medicine. (From Dorland, 27th ed) Physiologically the sodium ion plays a major role in blood pressure regulation, maintenance of fluid volume, and electrolyte balance. [NIH]

Soft tissue: Refers to muscle, fat, fibrous tissue, blood vessels, or other supporting tissue of the body. [NIH]

Solitary Nucleus: Gray matter located in the dorsomedial part of the medulla oblongata associated with the solitary tract. The solitary nucleus receives inputs from most organ systems including the terminations of the facial, glossopharyngeal, and vagus nerves. It is a major coordinator of autonomic nervous system regulation of cardiovascular, respiratory, gustatory, gastrointestinal, and chemoreceptive aspects of homeostasis. The solitary nucleus is also notable for the large number of neurotransmitters which are found therein. [NIH]

Somatic: 1. Pertaining to or characteristic of the soma or body. 2. Pertaining to the body wall in contrast to the viscera. [EU]

Sound wave: An alteration of properties of an elastic medium, such as pressure, particle displacement, or density, that propagates through the medium, or a superposition of such alterations. [NIH]

Spasmogenic: Capable of producing convulsions. [NIH]

Spatial disorientation: Loss of orientation in space where person does not know which way is up. [NIH]

Specialist: In medicine, one who concentrates on 1 special branch of medical science. [NIH]

Species: A taxonomic category subordinate to a genus (or subgenus) and superior to a subspecies or variety, composed of individuals possessing common characters distinguishing them from other categories of individuals of the same taxonomic level. In taxonomic nomenclature, species are designated by the genus name followed by a Latin or Latinized adjective or noun. [EU]

Sperm: The fecundating fluid of the male. [NIH]

Spinal cord: The main trunk or bundle of nerves running down the spine through holes in the spinal bone (the vertebrae) from the brain to the level of the lower back. [NIH]

Spleen: An organ that is part of the lymphatic system. The spleen produces lymphocytes, filters the blood, stores blood cells, and destroys old blood cells. It is located on the left side of the abdomen near the stomach. [NIH]

Stem Cells: Relatively undifferentiated cells of the same lineage (family type) that retain the ability to divide and cycle throughout postnatal life to provide cells that can become specialized and take the place of those that die or are lost. [NIH]

Stimulant: 1. Producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. An agent or remedy that produces stimulation. [EU]

Stimulus: That which can elicit or evoke action (response) in a muscle, nerve, gland or other excitable issue, or cause an augmenting action upon any function or metabolic process. [NIH]

Stomach: An organ of digestion situated in the left upper quadrant of the abdomen between the termination of the esophagus and the beginning of the duodenum. [NIH]

Streptococcal: Caused by infection due to any species of streptococcus. [NIH]

Streptococci: A genus of spherical Gram-positive bacteria occurring in chains or pairs. They

are widely distributed in nature, being important pathogens but often found as normal commensals in the mouth, skin, and intestine of humans and other animals. [NIH]

Streptococcus: A genus of gram-positive, coccoid bacteria whose organisms occur in pairs or chains. No endospores are produced. Many species exist as commensals or parasites on man or animals with some being highly pathogenic. A few species are saprophytes and occur in the natural environment. [NIH]

Stress: Forcibly exerted influence; pressure. Any condition or situation that causes strain or tension. Stress may be either physical or psychologic, or both. [NIH]

Stroke: Sudden loss of function of part of the brain because of loss of blood flow. Stroke may be caused by a clot (thrombosis) or rupture (hemorrhage) of a blood vessel to the brain. [NIH]

Stroke Volume: The amount of blood pumped out of the heart per beat not to be confused with cardiac output (volume/time). [NIH]

Stroma: The middle, thickest layer of tissue in the cornea. [NIH]

Subacute: Somewhat acute; between acute and chronic. [EU]

Subarachnoid: Situated or occurring between the arachnoid and the pia mater. [EU]

Subclinical: Without clinical manifestations; said of the early stage(s) of an infection or other disease or abnormality before symptoms and signs become apparent or detectable by clinical examination or laboratory tests, or of a very mild form of an infection or other disease or abnormality. [EU]

Subcutaneous: Beneath the skin. [NIH]

Subspecies: A category intermediate in rank between species and variety, based on a smaller number of correlated characters than are used to differentiate species and generally conditioned by geographical and/or ecological occurrence. [NIH]

Substance P: An eleven-amino acid neurotransmitter that appears in both the central and peripheral nervous systems. It is involved in transmission of pain, causes rapid contractions of the gastrointestinal smooth muscle, and modulates inflammatory and immune responses. [NIH]

Substrate: A substance upon which an enzyme acts. [EU]

Superoxide: Derivative of molecular oxygen that can damage cells. [NIH]

Superoxide Dismutase: An oxidoreductase that catalyzes the reaction between superoxide anions and hydrogen to yield molecular oxygen and hydrogen peroxide. The enzyme protects the cell against dangerous levels of superoxide. EC 1.15.1.1. [NIH]

Supine: Having the front portion of the body upwards. [NIH]

Supplementation: Adding nutrients to the diet. [NIH]

Suppurative: Consisting of, containing, associated with, or identified by the formation of pus. [NIH]

Sweat: The fluid excreted by the sweat glands. It consists of water containing sodium chloride, phosphate, urea, ammonia, and other waste products. [NIH]

Sweat Glands: Sweat-producing structures that are embedded in the dermis. Each gland consists of a single tube, a coiled body, and a superficial duct. [NIH]

Sympathetic Nervous System: The thoracolumbar division of the autonomic nervous system. Sympathetic preganglionic fibers originate in neurons of the intermediolateral column of the spinal cord and project to the paravertebral and prevertebral ganglia, which in turn project to target organs. The sympathetic nervous system mediates the body's response to stressful situations, i.e., the fight or flight reactions. It often acts reciprocally to

the parasympathetic system. [NIH]

Sympathomimetic: 1. Mimicking the effects of impulses conveyed by adrenergic postganglionic fibres of the sympathetic nervous system. 2. An agent that produces effects similar to those of impulses conveyed by adrenergic postganglionic fibres of the sympathetic nervous system. Called also adrenergic. [EU]

Symptomatic: Having to do with symptoms, which are signs of a condition or disease. [NIH]

Symptomatology: 1. That branch of medicine with treats of symptoms; the systematic discussion of symptoms. 2. The combined symptoms of a disease. [EU]

Synapses: Specialized junctions at which a neuron communicates with a target cell. At classical synapses, a neuron's presynaptic terminal releases a chemical transmitter stored in synaptic vesicles which diffuses across a narrow synaptic cleft and activates receptors on the postsynaptic membrane of the target cell. The target may be a dendrite, cell body, or axon of another neuron, or a specialized region of a muscle or secretory cell. Neurons may also communicate through direct electrical connections which are sometimes called electrical synapses; these are not included here but rather in gap junctions. [NIH]

Synapsis: The pairing between homologous chromosomes of maternal and paternal origin during the prophase of meiosis, leading to the formation of gametes. [NIH]

Synaptic: Pertaining to or affecting a synapse (= site of functional apposition between neurons, at which an impulse is transmitted from one neuron to another by electrical or chemical means); pertaining to synapsis (= pairing off in point-for-point association of homologous chromosomes from the male and female pronuclei during the early prophase of meiosis). [EU]

Syncope: A temporary suspension of consciousness due to generalized cerebral schemia, a faint or swoon. [EU]

Systemic: Affecting the entire body. [NIH]

Systole: Period of contraction of the heart, especially of the ventricles. [NIH]

Systolic: Indicating the maximum arterial pressure during contraction of the left ventricle of the heart. [EU]

Systolic blood pressure: The maximum pressure in the artery produced as the heart contracts and blood begins to flow. [NIH]

Systolic pressure: The highest pressure to which blood pressure rises with the contraction of the ventricles. [NIH]

Tachyarrhythmia: Tachycardia associated with an irregularity in the normal heart rhythm. [EU]

Tachycardia: Excessive rapidity in the action of the heart, usually with a heart rate above 100 beats per minute. [NIH]

Therapeutics: The branch of medicine which is concerned with the treatment of diseases, palliative or curative. [NIH]

Thermal: Pertaining to or characterized by heat. [EU]

Thoracic: Having to do with the chest. [NIH]

Thorax: A part of the trunk between the neck and the abdomen; the chest. [NIH]

Threshold: For a specified sensory modality (e. g. light, sound, vibration), the lowest level (absolute threshold) or smallest difference (difference threshold, difference limen) or intensity of the stimulus discernible in prescribed conditions of stimulation. [NIH]

Thrombin: An enzyme formed from prothrombin that converts fibrinogen to fibrin.

(Dorland, 27th ed) EC 3.4.21.5. [NIH]

Thrombocytes: Blood cells that help prevent bleeding by causing blood clots to form. Also called platelets. [NIH]

Thrombocytopenia: A decrease in the number of blood platelets. [NIH]

Thrombolytic: 1. Dissolving or splitting up a thrombus. 2. A thrombolytic agent. [EU]

Thrombosis: The formation or presence of a blood clot inside a blood vessel. [NIH]

Thromboxanes: Physiologically active compounds found in many organs of the body. They are formed in vivo from the prostaglandin endoperoxides and cause platelet aggregation, contraction of arteries, and other biological effects. Thromboxanes are important mediators of the actions of polyunsaturated fatty acids transformed by cyclooxygenase. [NIH]

Thymus: An organ that is part of the lymphatic system, in which T lymphocytes grow and multiply. The thymus is in the chest behind the breastbone. [NIH]

Thyroid: A gland located near the windpipe (trachea) that produces thyroid hormone, which helps regulate growth and metabolism. [NIH]

Thyroid Gland: A highly vascular endocrine gland consisting of two lobes, one on either side of the trachea, joined by a narrow isthmus; it produces the thyroid hormones which are concerned in regulating the metabolic rate of the body. [NIH]

Thyroid Hormones: Hormones secreted by the thyroid gland. [NIH]

Thyroxine: An amino acid of the thyroid gland which exerts a stimulating effect on thyroid metabolism. [NIH]

Tidal Volume: The volume of air inspired or expired during each normal, quiet respiratory cycle. Common abbreviations are TV or V with subscript T. [NIH]

Tin: A trace element that is required in bone formation. It has the atomic symbol Sn, atomic number 50, and atomic weight 118.71. [NIH]

Tinnitus: Sounds that are perceived in the absence of any external noise source which may take the form of buzzing, ringing, clicking, pulsations, and other noises. Objective tinnitus refers to noises generated from within the ear or adjacent structures that can be heard by other individuals. The term subjective tinnitus is used when the sound is audible only to the affected individual. Tinnitus may occur as a manifestation of cochlear diseases; vestibulocochlear nerve diseases; intracranial hypertension; craniocerebral trauma; and other conditions. [NIH]

Tissue: A group or layer of cells that are alike in type and work together to perform a specific function. [NIH]

Tonal: Based on special tests used for a topographic diagnosis of perceptive deafness (damage of the Corti organ, peripheral or central damage, i. e. the auditive cortex). [NIH]

Tonic: 1. Producing and restoring the normal tone. 2. Characterized by continuous tension. 3. A term formerly used for a class of medicinal preparations believed to have the power of restoring normal tone to tissue. [EU]

Tonicity: The normal state of muscular tension. [NIH]

Topical: On the surface of the body. [NIH]

Toxaemia: 1. The condition resulting from the spread of bacterial products (toxins) by the bloodstream. 2. A condition resulting from metabolic disturbances, e.g. toxaemia of pregnancy. [EU]

Toxic: Having to do with poison or something harmful to the body. Toxic substances usually cause unwanted side effects. [NIH]

Toxicity: The quality of being poisonous, especially the degree of virulence of a toxic microbe or of a poison. [EU]

Toxicokinetics: Study of the absorption, distribution, metabolism, and excretion of test substances. [NIH]

Toxicology: The science concerned with the detection, chemical composition, and pharmacologic action of toxic substances or poisons and the treatment and prevention of toxic manifestations. [NIH]

Toxins: Specific, characterizable, poisonous chemicals, often proteins, with specific biological properties, including immunogenicity, produced by microbes, higher plants, or animals. [NIH]

Trace element: Substance or element essential to plant or animal life, but present in extremely small amounts. [NIH]

Trachea: The cartilaginous and membranous tube descending from the larynx and branching into the right and left main bronchi. [NIH]

Transfection: The uptake of naked or purified DNA into cells, usually eukaryotic. It is analogous to bacterial transformation. [NIH]

Transfusion: The infusion of components of blood or whole blood into the bloodstream. The blood may be donated from another person, or it may have been taken from the person earlier and stored until needed. [NIH]

Transmitter: A chemical substance which effects the passage of nerve impulses from one cell to the other at the synapse. [NIH]

Transplantation: Transference of a tissue or organ, alive or dead, within an individual, between individuals of the same species, or between individuals of different species. [NIH]

Trauma: Any injury, wound, or shock, must frequently physical or structural shock, producing a disturbance. [NIH]

Tryptophan: An essential amino acid that is necessary for normal growth in infants and for nitrogen balance in adults. It is a precursor serotonin and niacin. [NIH]

Tumor Necrosis Factor: Serum glycoprotein produced by activated macrophages and other mammalian mononuclear leukocytes which has necrotizing activity against tumor cell lines and increases ability to reject tumor transplants. It mimics the action of endotoxin but differs from it. It has a molecular weight of less than 70,000 kDa. [NIH]

Type 2 diabetes: Usually characterized by a gradual onset with minimal or no symptoms of metabolic disturbance and no requirement for exogenous insulin. The peak age of onset is 50 to 60 years. Obesity and possibly a genetic factor are usually present. [NIH]

Tyramine: An indirect sympathomimetic. Tyramine does not directly activate adrenergic receptors, but it can serve as a substrate for adrenergic uptake systems and monoamine oxidase so it prolongs the actions of adrenergic transmitters. It also provokes transmitter release from adrenergic terminals. Tyramine may be a neurotransmitter in some invertebrate nervous systems. [NIH]

Tyrosine: A non-essential amino acid. In animals it is synthesized from phenylalanine. It is also the precursor of epinephrine, thyroid hormones, and melanin. [NIH]

Ulcer: A localized necrotic lesion of the skin or a mucous surface. [NIH]

Ultrafiltration: The separation of particles from a suspension by passage through a filter with very fine pores. In ultrafiltration the separation is accomplished by convective transport; in dialysis separation relies instead upon differential diffusion. Ultrafiltration occurs naturally and is a laboratory procedure. Artificial ultrafiltration of the blood is

referred to as hemofiltration or hemodiafiltration (if combined with hemodialysis). [NIH]

Unconscious: Experience which was once conscious, but was subsequently rejected, as the "personal unconscious". [NIH]

Urea: A compound (CO(NH2)2), formed in the liver from ammonia produced by the deamination of amino acids. It is the principal end product of protein catabolism and constitutes about one half of the total urinary solids. [NIH]

Uremia: The illness associated with the buildup of urea in the blood because the kidneys are not working effectively. Symptoms include nausea, vomiting, loss of appetite, weakness, and mental confusion. [NIH]

Ureters: Tubes that carry urine from the kidneys to the bladder. [NIH]

Urethra: The tube through which urine leaves the body. It empties urine from the bladder. [NIH]

Uric: A kidney stone that may result from a diet high in animal protein. When the body breaks down this protein, uric acid levels rise and can form stones. [NIH]

Urinary: Having to do with urine or the organs of the body that produce and get rid of urine. [NIH]

Urinary tract: The organs of the body that produce and discharge urine. These include the kidneys, ureters, bladder, and urethra. [NIH]

Urinary urgency: Inability to delay urination. [NIH]

Urine: Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through the urethra. [NIH]

Uterus: The small, hollow, pear-shaped organ in a woman's pelvis. This is the organ in which a fetus develops. Also called the womb. [NIH]

Vagus Nerve: The 10th cranial nerve. The vagus is a mixed nerve which contains somatic afferents (from skin in back of the ear and the external auditory meatus), visceral afferents (from the pharynx, larynx, thorax, and abdomen), parasympathetic efferents (to the thorax and abdomen), and efferents to striated muscle (of the larynx and pharynx). [NIH]

Vascular: Pertaining to blood vessels or indicative of a copious blood supply. [EU]

Vascular Resistance: An expression of the resistance offered by the systemic arterioles, and to a lesser extent by the capillaries, to the flow of blood. [NIH]

Vasoactive: Exerting an effect upon the calibre of blood vessels. [EU]

Vasoconstriction: Narrowing of the blood vessels without anatomic change, for which constriction, pathologic is used. [NIH]

Vasodilatation: A state of increased calibre of the blood vessels. [EU]

Vasodilation: Physiological dilation of the blood vessels without anatomic change. For dilation with anatomic change, dilatation, pathologic or aneurysm (or specific aneurysm) is used. [NIH]

Vasodilator: An agent that widens blood vessels. [NIH]

Vein: Vessel-carrying blood from various parts of the body to the heart. [NIH]

Venous: Of or pertaining to the veins. [EU]

Venous blood: Blood that has given up its oxygen to the tissues and carries carbon dioxide back for gas exchange. [NIH]

Ventilation: 1. In respiratory physiology, the process of exchange of air between the lungs and the ambient air. Pulmonary ventilation (usually measured in litres per minute) refers to

the total exchange, whereas alveolar ventilation refers to the effective ventilation of the alveoli, in which gas exchange with the blood takes place. 2. In psychiatry, verbalization of one's emotional problems. [EU]

Ventricle: One of the two pumping chambers of the heart. The right ventricle receives oxygen-poor blood from the right atrium and pumps it to the lungs through the pulmonary artery. The left ventricle receives oxygen-rich blood from the left atrium and pumps it to the body through the aorta. [NIH]

Ventricular: Pertaining to a ventricle. [EU]

Ventricular fibrillation: Rapid, irregular quivering of the heart's ventricles, with no effective heartbeat. [NIH]

Venules: The minute vessels that collect blood from the capillary plexuses and join together to form veins. [NIH]

Vestibulocochlear Nerve: The 8th cranial nerve. The vestibulocochlear nerve has a cochlear part (cochlear nerve) which is concerned with hearing and a vestibular part (vestibular nerve) which mediates the sense of balance and head position. The fibers of the cochlear nerve originate from neurons of the spiral ganglion and project to the cochlear nuclei (cochlear nucleus). The fibers of the vestibular nerve arise from neurons of Scarpa's ganglion and project to the vestibular nuclei. [NIH]

Vestibulocochlear Nerve Diseases: Diseases of the vestibular and/or cochlear (acoustic) nerves, which join to form the vestibulocochlear nerve. Vestibular neuritis, cochlear neuritis, and acoustic neuromas are relatively common conditions that affect these nerves. Clinical manifestations vary with which nerve is primarily affected, and include hearing loss, vertigo, and tinnitus. [NIH]

Veterinary Medicine: The medical science concerned with the prevention, diagnosis, and treatment of diseases in animals. [NIH]

Virulence: The degree of pathogenicity within a group or species of microorganisms or viruses as indicated by case fatality rates and/or the ability of the organism to invade the tissues of the host. [NIH]

Visceral: , from viscus a viscus) pertaining to a viscus. [EU]

Visceral Afferents: The sensory fibers innervating the viscera. [NIH]

Vitreous Hemorrhage: Hemorrhage into the vitreous body. [NIH]

Vivo: Outside of or removed from the body of a living organism. [NIH]

Vocal cord: The vocal folds of the larynx. [NIH]

Weight Gain: Increase in body weight over existing weight. [NIH]

Weight-Bearing: The physical state of supporting an applied load. This often refers to the weight-bearing bones or joints that support the body's weight, especially those in the spine, hip, knee, and foot. [NIH]

White blood cell: A type of cell in the immune system that helps the body fight infection and disease. White blood cells include lymphocytes, granulocytes, macrophages, and others. [NIH]

Windpipe: A rigid tube, 10 cm long, extending from the cricoid cartilage to the upper border of the fifth thoracic vertebra. [NIH]

Withdrawal: 1. A pathological retreat from interpersonal contact and social involvement, as may occur in schizophrenia, depression, or schizoid avoidant and schizotypal personality disorders. 2. (DSM III-R) A substance-specific organic brain syndrome that follows the cessation of use or reduction in intake of a psychoactive substance that had been regularly

used to induce a state of intoxication. [EU]

Xenograft: The cells of one species transplanted to another species. [NIH]

Yeasts: A general term for single-celled rounded fungi that reproduce by budding. Brewers' and bakers' yeasts are Saccharomyces cerevisiae; therapeutic dried yeast is dried yeast. [NIH]

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