

Vitamin D Deficiency Syndrome

<http://www.vitamindcouncil.com/vdds.shtml>

John Jacob Cannell, MD

27 December 2003

Abstract

We propose Vitamin D Deficiency Syndrome, or VDDS, exists when 25(OH)D levels of less than 25 ng/ml are found in patients with two or more of the following conditions: osteoporosis, heart disease, hypertension, autoimmune diseases, certain cancers, depression, chronic fatigue or chronic pain. VDDS is more common among dark skinned races, the aged and those who avoid the sun.

Serum 25(OH)D levels are obtained when the disorder is suspected. Serum 1,25 (OH)D levels have no place in diagnosing the syndrome and will mislead the physician. Sunlight, artificial light, oral or parental vitamin D, or a combination, aimed at restoring circulating levels of 25(OH)D between 35 and 55 ng/ml is the treatment of choice. Controlled sunlight is the safest form of vitamin D repletion. Cholecalciferol is the preferred form of oral vitamin D.

Vitamin D is safe when used in physiological doses (those used by Nature). Physiological doses are 3,000-5,000 IU/day, from all sources (sun, diet and supplements). Should hypercalcemia occur with such doses, it is due to vitamin D hypersensitivity syndrome, not vitamin D toxicity. Vitamin D hypersensitivity syndromes include conditions such as primary hyperparathyroidism, occult cancers (especially lymphoma) or granulomatous disease (especially sarcoidosis). In such cases, treatment of vitamin D deficiency should be done under the care of a knowledgeable physician. A serum 25(OH)D, serum 1,25(OH)D, PTH and SMA will lead the clinician in the right direction.

Introduction

Webster's Dictionary defines a syndrome as a "group of symptoms or signs typical of a disease, disturbance, condition, or lesion... a set of concurrent things" while a disorder is a "derangement of function: an abnormal physical or mental condition" [1].

Stedman's Medical Dictionary defines syndrome as "the aggregate of symptoms and signs associated with any morbid process, and constituting

together the picture of the disease".

Syndromes and Disorders

A Pub Med search reveals 492,879 papers with the word syndrome in the title. If the search is limited to core clinical journals containing the word syndrome in the title, published within the last year, some of returns include: pathological demand avoidance syndrome [2], irritable bowel syndrome [3], insulin resistance syndrome or the metabolic syndrome [4] [5], fatal malignant hyperthermia-like syndrome [6], premenstrual syndrome [7], organic dust toxic syndrome [8], Marshall's syndrome [9], long QT syndrome [10], acute respiratory distress syndrome [11], Lynch Syndrome [12], non-ST-segment elevation acute coronary syndrome [13], sudden infant death syndrome [14], precordial catch syndrome [15], Churg-Strauss syndrome [16], Goodpasture's syndrome [17], Hashimoto encephalopathy syndrome [18], and chronic fatigue syndrome [19].

Syndromes range from a group of behaviors (pathological demand avoidance syndrome), a group of signs and symptoms (irritable bowel syndrome and premenstrual syndrome), a group of clinical and lab findings (variably called the insulin resistance syndrome, metabolic syndrome or syndrome X), a single clinical finding with various etiologies (organic dust toxic syndrome), a collection of clinical findings presumably of various etiologies treated with a single surgical procedure, tonsillectomy (Marshall's syndrome), a specific and abnormal EKG with multiple etiologies (long QT syndrome), a specific germline mutation usually resulting in colon cancer (Lynch syndrome), life-threatening cardiac dysfunction without a specific finding, QT elevation, whose etiology is multifactorial (non-ST-segment elevation acute coronary syndrome), a diagnosis of exclusion with various etiologies including parental murder (sudden infant death syndrome), a single but common symptom (precordial catch syndrome), a rare vasculitis with diverse diagnostic and pathological criteria (Churg-Strauss syndrome), a collection of acute multisystem dysfunction presumed secondary to an unknown hypersensitivity (Goodpasture's syndrome), a syndrome of encephalopathy associated with a high antibody concentration some call mythical (Hashimoto encephalopathy syndrome) to a syndrome diagnosed entirely on symptoms (chronic fatigue syndrome). Therefore the word syndrome has various medical uses, uses that fit the lay dictionary definition.

For example, the ICD-9 contains a descriptive syndrome, misery and unhappiness disorder (313.1) [20]. Another example is false memory

syndrome, a syndrome first coined in the legal arena, but now widely used in the psychiatric literature. Analysis of any of the multiple and varied syndromes listed above makes it clear to the reader that strict criteria do not exist for naming a new syndrome. All that is important is that the syndrome describes a useful clinical concept, grounded in medical science, which helps doctors alleviate suffering.

Definition of VDDS

We propose that VDDS is a group of symptoms or signs typical of a disease, disturbance, condition, or lesion, a set of concurrent things and a derangement of function. VDDS is the aggregate of symptoms and signs associated with the morbid process of vitamin D deficiency, and constitute together the picture of the disease.

Osteoporosis, heart disease, hypertension, autoimmune diseases, certain cancers, depression, chronic fatigue or chronic pain. comprises potential manifestations of the syndrome. That is not to say these illnesses are caused by vitamin D deficiency, nor that repletion of the vitamin D system will cure these illnesses. At this point, all that can be said is that these illnesses are associated with vitamin D deficiency.

In a series of upcoming posts to this website, we will use the following **five criteria** to link each illness in VDDS with vitamin D deficiency:

- . epidemiological evidence the incidence of each illness subsumed by VDDS has increased as UVB exposure has lessened
- 0. evidence that each illness subsumed by VDDS is associated with low 25(OH)D levels
- 0. evidence that the illnesses comprising VDDS show significant co-morbidity
- 0. theoretical models that explain how vitamin D deficiency plays a causative role in each illness of VDDS
- 0. clinical evidence that treatment with physiological doses of vitamin D improve each illness in VDDS

Using these five requirements, we propose that Vitamin D Deficiency Syndrome (VDDS) exists when 25(OH)D levels are less than 25 ng/ml in patients with two or more of the following conditions: osteoporosis, heart disease, hypertension, autoimmune diseases, certain cancers, depression, chronic fatigue or chronic pain. VDDS is a group of diseases that are associated with chronic vitamin D insufficiency, and which cause a significant derangement of function. VDDS is more common among blacks, the aged and those who either avoid the sun or are deprived of it.

It is important to clearly state once again, we are not saying these illnesses are all caused from vitamin D deficiency; they are all multifactorial illnesses. We are not saying that vitamin D will cure all these illnesses; it will not, although it may help. We are only saying that evidence exists for a dictionary definition of a syndrome that associates vitamin D deficiency with these illnesses. Scientific evidence currently exists that some of these illnesses may be caused by vitamin D deficiency. Furthermore evidence exists that some of these illnesses may be helped by vitamin D repletion. The current evidence varies with each illness. For example, strong evidence exists that vitamin D reduces osteoporotic fractures, but only two small studies exist to show vitamin D helps depression.

However, those practicing medicine are not practicing science. Scientists practice science by conducting controlled experiments. Physicians practice medicine by making clinical decisions. Clinical decisions are always made using a benefit versus risk analysis, with current scientific knowledge as the cornerstone of the decision making process. Practicing physicians use this formula in every clinical decision they make, with every patient and do so many times a day. They need to make the same decision concerning VDDS and vitamin D repletion.

Over the next year we will make our case for each of the illnesses subsumed in VDDS. [Vitamin D and Mental Illness](#) is our first attempt.

[1] **Webster's Third New International Dictionary, Unabridged.** Copyright 1993 by Merriam-Webster, Incorporated.

[2] Newson E, Le Marechal K, David C. **Pathological demand avoidance syndrome: a necessary distinction within the pervasive developmental disorders.** Arch Dis Child. 2003 Jul;88(7):595-600.

[3] Harris ML, Aziz Q. **Brain-gut interaction in irritable bowel syndrome.** Hosp Med. 2003 May;64(5):264-9.

[4] Miller JL. **Insulin resistance syndrome. Description, pathogenesis, and management.** Postgrad Med. 2003 May;Spec No:27-34.

[5] Ginsberg HN. **Treatment for patients with the metabolic syndrome.** Am J Cardiol. 2003 Apr 3;91(7A):29E-39E.

[6] Hollander AS, Olney RC, Blackett PR, Marshall BA. **Fatal malignant hyperthermia-like syndrome with rhabdomyolysis complicating the presentation of diabetes mellitus in adolescent males.** Pediatrics. 2003 Jun;111(6 Pt 1):1447-52.

[7] Girman A, Lee R, Kligler B. **An integrative medicine approach to premenstrual syndrome.** Am J Obstet Gynecol. 2003 May;188(5 Suppl):S56-65.

- [8] Seifert SA, Von Essen S, Jacobitz K, Crouch R, Lintner CP. **Organic dust toxic syndrome: a review.** J Toxicol Clin Toxicol. 2003;41(2):185-93.
- [9] Berlucchi M, Meini A, Plebani A, Bonvini MG, Lombardi D, Nicolai P. **Update on treatment of Marshall's syndrome (PFAPA syndrome): report of five cases with review of the literature.** Ann Otol Rhinol Laryngol. 2003 Apr;112(4):365-9.
- [10] Viskin S, Justo D, Halkin A, Zeltser D. **Long QT syndrome caused by noncardiac drugs.** Prog Cardiovasc Dis. 2003 Mar-Apr;45(5):415-27.
- [11] Derdak S. **High-frequency oscillatory ventilation for acute respiratory distress syndrome in adult patients.** Crit Care Med. 2003 Apr;31(4 Suppl):S317-23.
- [12] Chung DC, Rustgi AK. **The hereditary nonpolyposis colorectal cancer syndrome: genetics and clinical implications.** Ann Intern Med. 2003 Apr 1;138(7):560-70.
- [13] McKay RG. **"Ischemia-guided" versus "early invasive" strategies in the management of acute coronary syndrome/non-ST-segment elevation myocardial infarction: the interventionalist's perspective.** J Am Coll Cardiol. 2003 Feb 19;41(4 Suppl S):96S-102S.
- [14] Beckwith JB. **Defining the sudden infant death syndrome.** Arch Pediatr Adolesc Med. 2003 Mar;157(3):286-90.
- [15] Gumbiner CH. **Precordial catch syndrome.** South Med J. 2003 Jan;96(1):38-41.
- [16] Noth I, Streck ME, Leff AR. **Churg-Strauss syndrome.** Lancet. 2003 Feb 15;361(9357):587-94.
- [17] Shah MK, Huggins SY. **Characteristics and outcomes of patients with Goodpasture's syndrome.** South Med J. 2002 Dec;95(12):1411-8.
- [18] Chong JY, Rowland LP, Utiger RD. **Hashimoto encephalopathy: syndrome or myth?** Arch Neurol. 2003 Feb;60(2):164-71.
- [19] Afari N, Buchwald D. **Chronic fatigue syndrome: a review.** Am J Psychiatry. 2003 Feb;160(2):221-36.
- [20] **ICD-9 World Health Organization International Classification of Diseases, 1998.**