

Vitamin D and disease prevention

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ABSTRACT

Vitamin D may be a very important vitamin occurring in many forms, particularly vitamin D₂ (1,25-dihydroxyvitamin D) or vitamin D₃ (25-hydroxyvitamin D), that is needed for the upkeep of system health particularly for traditional bone and tooth structure. Cholecalciferol is obtained either through dietary sources or synthesized within the skin by ultraviolet illumination from the Sun.

INTRODUCTION

The socio-economic standing, latitude and season are necessary determinants for cholecalciferol level [1]. Productions of cholecalciferol also are full of mutations in cholecalciferol receptor polymorphism, low daily atomic number 20 intake, obesity, aging, skin pigmentation, and smoking [2-5]. The consequence of cholecalciferol deficiency is mirrored by the high prevalence of hypovitaminosis in several countries that is reviewed by several authors [6-9] cholecalciferol deficiency not solely causes hypovitaminosis among youngsters, however it additionally causes bone diseases among adults. additionally, it's related to shriveled immune perform Associate in Nursing and an enlarged risk of upset, diabetes, chronic nephrosis, polycystic ovary syndrome, and plenty of varieties of cancer like breast, colon, and prostate cancers [10-12]. it absolutely was found that men have a much better cholecalciferol standing than women; and adolescents, young adults and older persons carry a high risk for cholecalciferol insufficiency. cholecalciferol deficiency in pregnant girls will increase the danger for hypovitaminosis in their offspring

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Now a days, deficiency or insufficiency of calciferol become a typical international drawback [14] variety of studies have shown that within the past decade the prevalence of calciferol deficiency, in each youngsters and adults, has hyperbolic apace worldwide particularly within the United Arab Emirates, Turkey, Australia, Lebanon and Asian nation [15]. Recent literatures confirmed that chronic nephrosis is additionally associated with deficiency or insufficiency of calciferol [16] Chronic illness | renal disorder | nephropathy | nephrosis | uropathy} (CKD) refers to a condition associated with irreversible excretory organ injury that may additional reach finish stage excretory organ

disease. CKD and deficiency/insufficiency of calciferol may be a major public ill health worldwide and intensive medical specialty analysis area unit offered for each.

Vitamin D and its potential health edges

There is a huge study showing the health edges of calciferol like it will improves muscle operate, defend respiratory organ operate, lower pressure level, blunts your appetite and vital for bone health. it's conjointly needed for the regulation of an oversized range of physiological functions [17]. The foremost operate of calciferol is to extend the active absorption of eaten Ca and phosphate that helps in building bone at younger ages [18]. in addition, adequate concentrations of calciferol is also vital in reducing the incidence of response diseases, like degenerative disorder, atrophic arthritis, diabetes, stop hypovitaminosis in youngsters and malacia in adults, and a few cancers [19]. calciferol deficiency is related to disorder [20], endocrine resistance [21]. development of autoimmune disorder, predisposing to pathology [22], and colon, breast and prostate cancers [23].

Vitamin D has totally different type like nourishment D2 or {ergocalciferol|vitamin D|calciferol|viosterol|cholecalciferol|D|fat-soluble nourishment} (plant sources of nourishment D) and nourishment D3 or cholecalciferol (animal sources of vitamin D). calciferol from all sources area unit become 25-vitamin D within the liver then carried to the kidneys wherever it's activated into one,25-dihydroxyvitamin D or ergocalciferol. Most of the patient with chronic nephrosis don't seem to be able to activate calciferol into its active kind of one,25-dihydroxyvitamin D. the flexibility of activation is decreases with progression of nephrosis (www.davita.com/kidney-disease).

Sources of calciferol

As mentioned higher than there area unit 2 kind of nourishment D: nourishment D2 occurring in plants and nourishment D3 occurring in humans and animals. each the forms are synthesized commercially however conjointly found in naturally. a number of the foods area unit naturally sensible sources of calciferol. the simplest food sources for calciferol area unit fatty fish (eg. herring, mackerel, sardines, tuna, salmon) eggs and fortified foods. Many foods, like some breakfast cereals and milk, area unit fortified with calciferol. daylight exposure is additionally thought of as main supply of calciferol. some ninetieth of calciferol is obtained from sun exposure that maintain adequate 25(OH)D blood serum levels in most of the individuals. the assembly of calciferol within the skin depends on the number of UVB radiation, quantity of skin exposed to daylight, length of exposure and skin kind.

Vitamin D deficiency and connected diseases

Vitamin D deficiency has been related to numerous diseases, like avitaminosis, ostemalacia, osteoprosis, arthritis, psychological feature problems, uropathy, metastasis considerations, diabetes, PCOS, gi problems, disorder, kind of system disorders and lots of kinds of cancer, and additionally related to muscle weakness and pain in each adults and youngsters [24-27].

Future prospective

As the deficiency of cholecalciferol may be a international downside, additional organized future studies square measure required to guage the blood serum level of 25(OH)D within the patients. AN economical

epidemiologic study can have an effect on future recommendation of cholecalciferol intake levels. additional studies square measure needed to grasp higher the role of 25(OH)D and to characterize the gene–environment interactions that influence 25(OH)D and one,25(OH)D level [28]. last, additional attention ought to be paid to see standing of cholecalciferol within the world population and intake of cholecalciferol in patients full of numerous diseases [29]. The folks ought to involve in additional outside activity throughout the daytime so as to extend their exposure to daylight particularly girls United Nations agency board homes [30]. The consumption of food having smart supply of cholecalciferol like fatty fishes, farm merchandise and eggs ought to even be exaggerated [19]. Patient full of nephritic and cardio-vascular diseases ought to consume extra amounts of cholecalciferol when correct consultation with doctor. Also, additional education is required within the space of cholecalciferol deficiency to form the general public additional alert to this major problem [31].

REFERENCES

1. Al Jurayyan AN, Al-Jurayyan RNA, Al-Jurayyan NAM (2012) Should Paediatricians be Familiar with Osteoporosis? *Primary Health Care* 2:122
2. Žoric L, Stojic M (2013) The Influence of Ultraviolet Radiation on Eye. *Primary Health Care* 3:133.
3. Walji R, Wahoush O, Atkinson SA (2013) Feasibility and Acceptance of a Novel Nutrition and Exercise Intervention to Manage Excess Gestational Weight Gain: Focus group study in Ontario, Canada. *Primary Health Care* 3:134.
4. Lara-Cinisomo S, Chandra A, Burns RM, Lau J (2013) Recommendations for Counselors and Community Service Providers Working with Military Families. *Primary Health Care* 3:139.
5. Puthussery S, Regmi K (2013) Health Care Commissioning: The UK Health Policy Reforms. *Primary Health Care* S5:e001.
6. Baratieri T (2013) Evaluation of Primary Health Care in Brazil: A Literature Review. *Primary Health Care* 3:144
7. Mane Abhay B, Khandekar Sanjay V (2014) Strengthening Primary Health Care Through Asha Workers: A Novel Approach in India. *Primary Health Care* 4:149.
8. Jung Saridi M, Toska A, Rekleiti M, Sarafis P, Zoukas L, et al. (2014) An Educational Intervention in Primary School Students Regarding Sun Protection: A Pilot Study. *Primary Health Care* 4:153.
9. Hendawy OM, Ahmed WMS, Abosaif AA, Mahmoud FA (2015) Effect of Atorvastatin and Vitamin D on Freund's Adjuvant-Induced Rheumatoid Arthritis in Rat. *J Bioequiv Availab* 7:090-094.
10. Kaeslin MA, Fuhrer CA, Herklotz R, Huber AR (2014) Do Postmenopausal Women Have Higher Serum 25-Hydroxyvitamin D3 Concentrations Compared to Men or Younger Women? *Autacoids* 3:107.
11. Pedersen MA, Gregersen M, Langdahl BL, Damsgaard EMS (2014) Frail Elderly Hip Fracture Patients and Vitamin D. *J Gerontol Geriat Res* 3:1000180
12. Vijayan A, Li T, Dusso A, Jain S, Coyne DW (2015) Relationship of 1,25 dihydroxy Vitamin D Levels to Clinical Outcomes in Critically Ill Patients with Acute Kidney Injury. *J Nephrol Ther* 5:190.
13. Jain M, Kapry S, Jain S, Singh SK, Singh TB (2015) Maternal Vitamin D Deficiency: A Risk Factor for Gestational Diabetes Mellitus in North India. *Gynecol Obstet (Sunnyvale)* 5:264
14. Ralls VA, Boyer AP, Wilkins CH (2014) Vitamin D in Aging and Chronic Illness. *Vitam Miner* 3:125.
15. Hendrik HD, Raubenheimer EJ (2014) Vitamin D Nuclear Receptor and Periodontal Disease: A Review. *J Interdiscipl Med Dent Sci* 3:157.

16. Melnyk S, Evans T, Korourian S, Hakkak R (2014) Effect of Obesity on Serum Vitamin D Metabolites Using Obese Zucker Rat Model.
17. Varney VA, Warner A (2014) The Successful Use of Vitamin D in Physical Urticaria. *J Allergy Ther* 5:200.
18. Yannoutsos A, Agnoletti D, Peroz-Froz J, Camille LY, Lelong H, et al. (2014) Structural and Functional Arterial Parameters, Immunovirological Control and Vitamin D in HIV-Infected Patients. *J AIDS Clin Res* 5: 375
19. Altindag O, Ögüt E, Gur A, Gursoy S, Gunay M (2014) Serum Vitamin D Level and its Relation with Clinical Parameters in Fibromyalgia as a Neuropathic Pain. *Orthopedic Muscul Syst* 3:171.
20. Winters AC, Kethman W, Kruse-Jarres R, Kanter J (2014) Vitamin D Insufficiency is a Frequent Finding in Pediatric and Adult Patients with Sickle Cell Disease and Correlates with Markers of Cell Turnover. *J Nutr Disorders Ther* 4:140.
21. Arsala L, Silva Costa FD, Murthi P, (2014) The Association between Maternal Vitamin D Status in Gestation and Pre-Eclampsia. *J Preg Child Health* 1:107.
22. Rogatsky E, Browne S, Cai M, Jayatillake H, Stein D (2014) Quantitative Analysis of 25-OH Vitamin D Using Supported Liquid Extraction and Liquid Chromatography - Mass Spectrometry. *J Chromatograph Separat Techniq* 5:224.
23. Mena F (2014) Supplementation of Vitamin D in Patients with Sickle Cell Bone Disease: A D-bate or a Combate?. *J Hematol Thrombo Dis* 2:e115
24. CA de Jager (2014) Vitamin D and Cognition: Are There Any Cautions Against Intervention Trials for Older Adults?. *Vitamin Miner* 3:e128.
25. Ashour TH (2014) Effect of Vitamin D Supplementation with Pegylated Interferon-a and Ribavirin on Erythrocyte Indices, Iron Parameters and Erythropoietin Expression in Male Wistar Rats. *Clin Exp Pharmacol* 4:160.
26. El Badri D, Rostom S, Bouaddi I, Hassani A, Chkirate B, et al. (2014) Bone Mineral Density in Moroccan Patients with Juvenile Idiopathic Arthritis. *J Arthritis* 3:131.
27. Jung YG (2013) Capital-Skill Complementarity and Jobless Recovery. *J Stock Forex Trad* 2:104.
28. Vander SG, van Hellemond FJ, Wielders JPM (2014) Do Professional Soccer Players have a Vitamin D Status Supporting Optimal Performance in Winter time?. *J Sports Med Doping Stud* 4:138.
29. Krassilnikova M, Ostrow K, Bader A, Heeger P, Mehrotra A (2014) Low Dietary Intake of Vitamin D and Vitamin D Deficiency in Hemodialysis Patients. *J Nephrol Ther* 4:166.
30. Teske K, Nandhikonda P, Bogart JW, Feleke B, Sidhu P, et al. (2014) Modulation of Transcription Mediated by the Vitamin D Receptor and the Peroxisome Proliferator-Activated Receptor δ in the Presence of GW0742 Analogs. *J Biomol Res Ther* 3:111.
31. Jarrett F, Ducasa GM, Buller DB, Berwick M (2014) The Effect of Oral Supplementation of Vitamin D₃ on Serum Levels of Vitamin D: A Review. *Epidemiol* 4:148.