

Diagnosis and treatment of vitamin D deficiency

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The recent discovery – in a randomised, controlled trial – that daily ingestion of 1100 IU of colecalciferol (vitamin D) over a 4-year period dramatically reduced the incidence of non-skin cancers makes it difficult to overstate the potential medical, social and economic implications of treating vitamin D deficiency. Not only are such deficiencies common, probably the rule, vitamin D deficiency stands implicated in a host of diseases other than cancer. The metabolic product of vitamin D is a potent, pleiotropic, repair and maintenance, secosteroid hormone that targets > 200 human genes in a wide variety of tissues, meaning it has as many mechanisms of action as genes it targets. A common misconception is that government agencies designed present intake recommendations to prevent or treat vitamin D deficiency. They did not. Instead, they are guidelines to prevent particular metabolic bone diseases. Official recommendations were never designed and are not effective in preventing or treating vitamin D deficiency and in no way limit the freedom of the physician – or responsibility – to do so. At this time, assessing serum 25-hydroxy-vitamin D is the only way to make the diagnosis and to assure that treatment is adequate and safe. The authors believe that treatment should be sufficient to maintain levels found in humans living naturally in a sun-rich environment, that is, > 40 ng/ml, year around. Three treatment modalities exist: sunlight, artificial ultraviolet B radiation or supplementation. All treatment modalities have their potential risks and benefits. Benefits of all treatment modalities outweigh potential risks and greatly outweigh the risk of no treatment. As a prolonged 'vitamin D winter', centred on the winter solstice, occurs at many temperate latitudes, ≤ 5000 IU (125 μg) of vitamin D/day may be required in obese, aged and/or dark-skinned patients to maintain adequate levels during the winter, a dose that makes many physicians uncomfortable.

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