



REVIEW

Can vitamin D deficiency cause diabetes and cardiovascular diseases? Present evidence and future perspectives

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Abstract Several studies have shown that vitamin D may play a role in many biochemical mechanisms in addition to bone and calcium metabolism. Recently, vitamin D has sparked widespread interest because of its involvement in the homeostasis of the cardiovascular system. Hypovitaminosis D has been associated with obesity, related to trapping in adipose tissue due to its lipophilic structure. In addition, vitamin D deficiency is associated with increased risk of cardiovascular disease (CVD) and this may be due to the relationship between low vitamin D levels and obesity, diabetes mellitus, dyslipidaemia, endothelial dysfunction and hypertension. However, although vitamin D has been identified as a potentially important marker of CVD, the mechanisms through which it might modulate cardiovascular risk are not fully understood. Given this background, in this work we summarise clinical retrospective and prospective observational studies linking vitamin D levels with cardio-metabolic risk factors and vascular outcome. Moreover, we review various randomised controlled trials (RCTs) investigating the effects of vitamin D supplementation on surrogate markers of cardiovascular risk. Considering the high prevalence of hypovitaminosis D among patients with high

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