

Vitamin D Deficiency & Acute Coronary Syndrome - Is There Any Link?

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Vitamin D deficiency is a worldwide health problem with prevalence ranging in between 70%-100% in the general population (1).

Lee JH *et al* (2) reported very high prevalence up to 75% as 25(OH)D deficient and 21% as insufficient, making a total of 96% of patients with abnormally low 25(OH)D levels who presented with coronary artery disease. Similarly, Mahdavi K *et al* (3) reported 72% of patients with acute coronary syndrome to had serum 25-hydroxyvitamin D level of 20 ng/ml or less. In another study 92% of the subjects had suboptimal levels of 25(OH) D, with 22.2% being severely deficient and reported that optimal 25(OH)D levels substantially lowered all-cause and cardiovascular disease mortality in subjects with the metabolic syndrome (4).

A growing body of evidence existing from epidemiological study supports an association between vitamin D and cardiovascular disease (5). Vitamin D deficiency is also reported to be associated with substantial increases in the incidence of cardiovascular risk factors like hypertension, hyperlipidaemia, myocardial infarction and stroke, as well as in diseases such as chronic kidney disease and type 1 & 2 diabetes (6, 7). Furthermore, severe vitamin D deficiency has been shown to be independently associated with in-hospital cardiovascular mortality in patients with acute coronary syndrome (8,9). Recently one study elucidated that low serum 25(OH) D is an independent risk factor for CVD (10).

The possible correlation between Vitamin D insufficiency and cardiac events has been postulated to be associated with metabolic, procoagulant and inflammatory events and is not independently related to premature MI. This suggests that vitamin D insufficiency either constitutes an epiphenomenon or increases the risk of MI by promoting established risk factor mechanisms that predispose to atherothrombosis (11).

Another possible explanation for such correlation has been suggested to be due to a strong association between VD insufficiency and the slow coronary flow phenomenon. In addition, VD insufficiency has been

shown to be associated with endothelial dysfunction and subclinical atherosclerosis (12).

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