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HEART FAILURE

Study sheds light on importance of vitamin D in patients with HF

In a study from Jerusalem, Israel, deficiency of vitamin D was both common and associated with increased mortality in patients with heart failure (HF). Vitamin D deficiency is highly prevalent around the world and is associated with multiple cardiovascular risk factors, such as diabetes mellitus, obesity, and hypertension. Endogenous synthesis of vitamin D from exposure to sunlight is increasingly being limited by indoor lifestyles, even in sun-rich countries like Israel, and particularly in patients whose activity levels are restricted by cardiovascular disease. Also, vitamin D is fat-soluble and can be sequestrated in the adipose tissue of individuals with obesity.

Investigators measured serum levels of 25-hydroxyvitamin D [25(OH)D] in 49,834 individuals ($n = 3,009$ with HF and $n = 46,825$ controls) between January 2006 and June 2010. 25(OH)D levels ≥75 nmol/l and <25 nmol/l are considered to be optimal and deficient, respectively. Patients with HF had lower 25(OH)D levels (36.9 nmol/l versus 40.7 nmol/l), a higher prevalence of vitamin D deficiency (28% versus 22%), and a lower incidence of vitamin D sufficiency (8.8% versus 10.1%) than control individuals. A significant seasonal variation in 25(OH)D levels was observed in all participants, with peak levels recorded in June–August.

During follow-up (median 518 days), vitamin D deficiency was a predictor of increased mortality both in patients with HF (HR 1.52, 95% CI 1.21–1.92, $P < 0.001$) and controls (HR 1.91, 95% CI 1.48–2.46, $P < 0.00001$). Vitamin D supplementation (800–1,000 units per day) was prescribed to 63% of patients with HF during follow-up, and was independently associated with a reduction in mortality (HR 0.68, 95% CI 0.54–0.85, $P < 0.0001$). Calcium supplementation had no effect on outcome.

"This study depicts the magnitude of the problem of vitamin D deficiency in patients with HF, as well as in the general population, even in a country with abundant solar radiation," comments lead author, Dr Israel Gotsman. Although these data indicate a "clear epidemiological relationship between vitamin D status and clinical outcome in [patients with] HF, and that vitamin D supplementation may influence outcome ... there is a definite need for further randomized controlled studies."

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