Title: Vitamin D for healthy aging

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To the Editor,

Buta et al., in a longitudinal cohort study, have recently reported that women (70-79 years of age) with lower serum concentrations of 25-hydroxyvitamin D (25(OH)D) (<10 ng/mL) had a three-fold increased risk of developing frailty than those with the higher 25(OH)D (≥30 ng/mL) levels. Authors found that 32.2 per 1,000 person-years in participants with 25(OH)D <10 ng/mL suffered frailty compared with an incidence of 12.9% per 1,000 person-years in those women with 25(OH)D ≥30 ng/mL. The association was no longer significant after accounting cardiometabolic diseases.[1]

As we reviewed, this results can be explained because low levels of 25(OH)D have been found in patients with cardiovascular disease, hypertension, carotid atherosclerosis, atrial fibrillation, heart failure and myocardial infarction.[2] This deficiency has been associated with all-cause mortality.[2] Vitamin D play also an important role on skeletal muscle,[3] and the expression of it receptor declines with aging in this tissue.[4] 25(OH)D deficiency reduces physical function (through grip strength evaluation),[5] physical performance,[6] increases sarcopenia,[7] and the risk of recurrent falls and fractures in older people.[8]

Bischoff-Ferrari et al. estimated that 30 ng/mL is the optimal concentration of 25(OH)D in relation to bone mineral density, lower-extremity function, dental health, risk of falls, fractures, cancer prevention, incident hypertension and mortality, while 25(OH)D levels <20 ng/mL are associated with adverse effects.[9] We previously found that healthy centenarians showed higher serum 25(OH)D levels than younger patients with acute myocardial infarction (27-39 years) and even with healthy adults (28-39 years). Thereby we concluded that serum 25(OH)D is associated with successful exceptional longevity.[2]

Buta et al. concluded that serum circulating vitamin D may partially predict frailty onset and could represent a biomarker for the identification of frailty risk and other adverse outcomes.[1] Supporting the detrimental effects of low level of vitamin D, a recent systematic review and meta-analysis concluded that compared to the highest level of 25(OH)D, the association between frailty and the lowest level of 25(OH)D was significant.[10]

Considering all the above mentioned, we highlight the importance of the correction of vitamin D deficiencies through an appropriate supplementation. An intake of vitamin D ≥40 μg/day is needed to reach at least 50% of the aforementioned 25(OH)D optimal concentrations,[9] and safe sunlight exposure may be highly recommended to promote healthy aging and longevity avoiding cardiometabolic disturbances and musculoskeletal alterations such as frailty.[10]

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