

## ANDROLOGY

## Is there a link between hypogonadism and vitamin D deficiency in aging men?

Secondary hypogonadism and compensated hypogonadism are associated with vitamin D deficiency, according to a recent report in the *European Journal of Endocrinology*.

Previous studies have linked vitamin D levels to conditions associated with aging, but this connection remains unclear. The reduction in serum testosterone that accompanies aging is well characterized and an association between serum levels of testosterone and 25-hydroxyvitamin D (25(OH)D—the main circulating form of the vitamin) has also been observed.

This study used baseline data from the European Male Ageing Study (EMAS)—a prospective, noninterventive study of male aging. 3,369 men aged 40–79 years participated in the study, which was carried out in centers across Europe. Fasting blood samples were collected and levels of reproductive hormones and 25(OH)D measured, in order to determine

whether there was an association between them in aging men, to investigate the effect of season on vitamin D and hormone levels, and to determine whether hypogonadism was associated with vitamin D deficiency.

**“...almost 50% of men classified as hypogonadal were also 25(OH)D deficient...”**

Levels of total testosterone, dihydrotestosterone (DHT), follicle-stimulating hormone (FSH) and sex-hormone binding globulin (SHBG) were similar across all men, regardless of their 25(OH)D status, but serum levels of free testosterone, estradiol (E2) and luteinizing hormone (LH) were significantly higher in men with 25(OH)D levels classified as ‘deficient’ or ‘suboptimal’, when adjusted for age and

center. However, this association was lost when further adjustment for health and lifestyle factors was carried out. 25(OH)D levels varied with season (nadir in April; zenith in August), but this pattern was not observed with reproductive hormones. Stratification of men into groups by gonadal status (as eugonadal, compensated hypogonadal, primary hypogonadal or secondary hypogonadal) showed that almost 50% of men classified as hypogonadal were also 25(OH)D deficient.

Further work will aim to elucidate this relationship and examine the effects of vitamin D supplementation in hypogonadal men.

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