

## Is headache related with Vitamin D insufficiency?

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Sir,

In the article by Prakash et al. [1], a relation between prevalence of headache and the latitude was reviewed. Although the profile of headache matches with seasonal variations and geographical distribution of serum vitamin D levels, we believe that it is currently far-fetched to correlate headache with vitamin D insufficiency.

Several lines of epidemiological and experimental evidence have been proposed to support links of vitamin D with various conditions or diseases beyond bone health, including muscle function, autoimmune diseases, cancer, cardiovascular diseases (CVD), hypertension, diabetes, inflammatory diseases, all-cause mortality, etc. [2].

The relations between vitamin D insufficiency and human diseases, especially multiple sclerosis has been partly explained by the seasonal and geographical variations of serum vitamin D, which has further been confirmed by decreased incidence and severity of multiple sclerosis by vitamin D supplementation [3]. In this regard, either observational studies to find decreased levels of serum vitamin D in patients with headache or placebo-controlled studies to observe the therapeutic effects of vitamin D in headache are still lacking.

The geographical features of apolipoprotein E(apoE) allele [4] and serum vitamin D concentrations [5], both of

which are associated with autoimmune diseases such as multiple sclerosis, also lead us to assume that there might be some correlations between apoE epsilon 4 allele and vitamin D. However, since robust evidence is lacking, from the current knowledge, we can only ascribe this to coincidence, unless new evidence can be found in future studies. Otherwise wearing more clothes may also be linked to the higher incidence of stroke in cold areas.

In summary, it is promising to confirm a positive correlation between headache and vitamin D insufficiency in that it may provide new therapeutic strategies for migraine as well as other types of headaches. However, further investigations are still needed to find out such a relation between headache and vitamin D.

**Conflict of interest** None.

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