



COMMENT

## Comment on: Plasma vitamin D, past chest illness, and risk of future chest illness in chronic spinal cord injury (SCI): a longitudinal observational study

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I read with interest the research by Clark et al. in recent issue of *Spinal Cord* [1]. The article points out that deficient vitamin D levels in chronic SCI patients may be associated with future chest disease. I cannot agree more. Moreover, I have found several points to support this conclusion.

A study conducted by Black et al. [2] found that concentrations of 25-hydroxy vitamin D in serum are strongly related to FEV1 and FVC. FEV1 peaks between the ages of 18 and 25 and then decreases with age [3]. Although lungs do not grow in size in early adulthood, tissue remodeling and repair is likely to occur throughout life. The number of elastic fibers in alveolar wall also decreases with age, but at the same time the body will increase type III collagen levels. 1,25-dihydroxyvitamin D affects collagen synthesis by inhibiting the formation of matrix metalloproteinases and the proliferation of fibroblasts. This also means that 1,25-dihydroxyvitamin D can affect tissue remodeling and repair [4].

Another reason may be that 1,25-dihydroxyvitamin D can be metabolized by cells of the immune system. Moreover, vitamin D receptors are widely expressed in immune cells, and vitamin D binding proteins also have immunoregulatory functions, which are related to macrophage activation and neutrophil chemotaxis [5]. Therefore, the vitamin D axis plays an important role in respiratory health by enhancing the natural antibacterial

response to respiratory pathogens and inhibiting pulmonary inflammatory responses.

At the same time, SCI patients are particularly vulnerable to vitamin D deficiency, and even more so than elderly people. Inadequate diet, a lack of exposure to sunlight, and ingestion of drugs that induce liver microsomal enzymes can accelerate vitamin D metabolism disorders and may be involved in the pathogenesis of low vitamin D levels. In patients with SCI, disability and muscle waste hinder the functional independence of daily living activities and participation in leisure time physical activities, which not only leads to lack of sunlight exposure, but also increases obesity. This leads to insufficient skin cartilage calcium biosynthesis, and 25(OH)D in the fat [6]. Another reason may be that people with chronic SCI often refuse to consume vitamin D because of the risk of calcium stones.

### Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

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