

Vitamin D Deficiencies

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Description

Depression is a common psychiatric complication after stroke. However, the relationships among sleep quality, vitamin D status and depression are unclear in stroke patients [1]. The combination of poor sleep quality and vitamin D deficiency is associated with a substantially increased risk of Post-stroke Depression (PSD). One of the most common undiagnosed health conditions the world over, is vitamin D deficiency. Vitamin D has an important role in the regulation of bone metabolism. Bone metabolism depends on the equilibrium between vitamin D, calcium (Ca), calcitonin, and parathyroid hormone (PTH) levels.

Vitamin D regulates the serum levels of Ca and phosphorus (Pi) by promoting their intestinal absorption and reabsorption in the kidneys [2]. Furthermore, it promotes bone deposition and inhibits the release of PTH from the parathyroid glands, which in turn increases the concentration of Ca in the blood. Calcitonin is another hormone secreted by the thyroid gland and stimulated by the rise in calcium concentration in the blood, thus protecting the body against the development of hypercalcemia. Calcitonin is known to stimulate vitamin D. When there is an inhibition of intestinal Ca absorption because of vitamin D deficiency, it leads to hyperparathyroidism, which stimulates bone resorption and loss [3]. It has been found that there is an association between vitamin D levels and bone metabolism.

Vitamin D deficiency is a common phenomenon in non-alcoholic fatty liver disease (NAFLD) and the progressive non-alcoholic steatohepatitis (NASH). Jiangzhi Granule (JZG) formula is a Traditional Chinese medicine prescription, and has been found effective against NAFLD/NASH. Here we showed that vitamin D deficiency could accelerate NASH development, and reduce vitamin D receptor (VDR) expression. Several cut-off points for 25-hydroxyvitamin D (25(OH)D) levels have been proposed to determine vitamin D deficiency or insufficiency. However, the level for 25(OH)D deficiency in early infancy remains unclear [4]. The serum 25(OH)D value at which parathyroid hormone level plateaus, called the "inflection point," is considered the most appropriate criterion for defining an adequate vitamin D status. Vitamin D deficiency increases PTH production, increasing bone turnover rate and promoting

bone mineral loss. Inverse associations between serum 25(OH)D and PTH concentrations have been established in adults and older children. Evidence suggests that PTH is more responsive to 25(OH)D in children than in the elderly.

Vitamin D supplementation is essential for the entire population, especially during pregnancy and in the pediatric period. We report two case studies of full-term newborns who presented long-bone fractures associated with severe vitamin D deficiency transmitted to them by their mothers, even though maternal supplementation had been implemented according to the existing recommendations [5]. Curcuminoids and vitamin D have been shown to improve blood pressure and body weight in diabetic animals; however, consistent findings in type 2 diabetes mellitus (T2DM) patients are limited. This study was performed to evaluate the effects of curcuminoids and vitamin D, simultaneously or singly on anthropometric measurements and blood pressure in T2DM patients with insufficient vitamin D level.

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