

Vitamin D – past and present

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In the last 10 years, a vitamin D boom has occurred in the field of practical and laboratory medicine. The main reason is the fact that vitamin D is not any more considered solely as an agent affecting calcium-phosphate metabolism. It is well known that vitamin D enables the absorption of calcium in the gut via promoting the formation of calcium binding protein. Over the last few years, the so-called non-skeletal effects of vitamin D have been subject of a number of studies, demonstrating its role in immunomodulation and effect on the development and activity of the brain and nervous systems.

The term „vitamin D“ stands for more than 35 metabolites of this steroid hormone; however, only one of them - calcitriol - is an active hormone. It is therefore necessary to distinguish between individual forms of vitamin D. The formation of calcidiol as a storage form and calcitriol as the active form of vitamin D is described in a number of papers. Taking into account a vitamin D supplementation, it is important to distinguish between vitamin D3 (cholecalciferol) and vitamin D2 (ergocalciferol), which has a plant origin and is generally considered to be four times less efficient than vitamin D3.

Calcitriol has its own transport protein (VDBP) and binds to vitamin D receptors (VDR). Calcitriol can be referred to as a neuroactive steroid hormone, because after binding to VDR, it has both genomic and non-genomic effects, which is the main characteristic of neurosteroids. As a neurosteroid it affects the L-type of calcium channels and influences brain functions.

The current pandemic caused by covid 19 disease has confirmed the immunoprotective role of vitamin D: it not only contributes to the protection against this severe disease, but also it is successfully used in high doses as a therapeutic.