Tytuł: Bezpieczeństwo witaminy D – mechanizmy i dawkowanie. / Vitamin D Safety: Its Mechanisms and Application.

Słowa kluczowe: 25(OH)D3 hiperkalcemia hiperkalciuria witamina D
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Streszczenie:
W pracy poglądowej szczegółowo omówiono aspekty dotyczące bezpieczeństwa suplementacji witaminą D. Analizie poddano mechanizmy regulujące stężenie metabolitów witaminy D. Ujawniono ryzyko efektów toksycznych wynikających z przedawkowania witaminy D przy stężeniu 25(OH)D3 wyższym od 500 nmol/L (200 ng/ml), przy czym ryzyko wystąpienia efektów toksycznych oceniono jako znikome dla dobowych dawek witaminy D nie przekraczających 25 000 IU. Dyskusji poddano rekomendacje IOM oraz zalecane stężenia 25(OH)D3 – 50–125 nmol/L (20–50 ng/ml).

Abstract:
Basic biomedical research has revealed that vitamin D3 is activated first to its main circulating form, 25-hydroxyvitamin D3[25(OH)D3], then to its hormonal form 1,25-dihydroxyvitamin D3 [1α,25(OH)2D3] before its performs its physiological role in the body, which involves regulation of gene expression in awide range of cell types. 1α, 25(OH)2D3 plays key endocrine roles in calcium and phosphate homeostatic loops, as well as other functions in controlling epithelial cell proliferation and differentiation in what could be classified as local autocrine/paracrine actions. Vitamin D has a broad safety range and reported cases of human toxicity are rare. Hypervitaminosis D resulting in symptoms of hypercalciuric and hypercalcemic seems not to result from over-production of 1α,25(OH)2D3 but by overproduction of 25(OH)D3 and its other metabolites which upset the plasma transport processes involving D-binding protein and allow 25(OH)D3 to flood into cells, trigging aberrant gene expression. However, the levels of 25(OH)D3 associated with acute toxicity are above 500 nmol/L (200ng/mL) and these values are unlikely to be reached at dietaryin takes below 25,000 IU/day. Based upon a few epidemiological studies which suggest that vitamin D might have potentially harmful effects, some agencies are raising concerns that chronic administration of moderate doses over extended periods of time might be deleterious. Based upon balancing the benefits/risks of vitamin D administration, the 2011IOM Report recently recommended a tolerable upper limit of4000 IU/day and keeping serum 25(OH)D levels in the 50–125nmol/L (20–50 ng/mL) range for optimal performance.