Serum levels of IL-6, IL-10, IL-12, IL-17 and IFN-γ and their association with markers of bone metabolism in vitamin D-deficient female students.

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Source
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Abstract
Different studies have shown the regulatory effects of vitamin D(3) on the immune system and bone metabolism. Regarding the effects of vitamin D on immune cells and the importance of cytokines on bone metabolism, we assessed the association between serum levels of interleukin (IL)-6, IL-10, IL-12, IL-17 and IFN-γ cytokines and bone metabolism markers (Ca, P, PTH, ALP) in female students with vitamin D deficiency compared with control group. A total of 100 subjects with 25-hydroxy vitamin D(3) (25-(OH)D(3)) deficiency were selected as case and 100 subjects with sufficient 25-hydroxy vitamin D(3) (25-(OH)D(3)) were selected as the control group. The serum levels of IL-6, IL-10, IL-12, IL-17 and IFN-γ were measured by ELISA method. Ionized Ca, PTH, P, ALP levels were also determined in all participants. The results showed a statistically significant positive correlation between the levels of ALP with IFN-γ, PTH with IL-17 and a significant negative correlation between P with IL-10 in vitamin D deficient group. The results suggest that IL-17, IFN-γ and IL-10 are important mediators of bone metabolism and vitamin D affect bone metabolism, at least in part, through immune system. In addition, not only vitamin D affect bone metabolism but also modulates immune responses.

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