

Bone Mineral Density in Young Chilean Patients with type 1 Diabetes Mellitus

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Resumen

Background: In this study, our aim was to analyze bone mineral density (BMD) in patients with type 1 diabetes mellitus (T1DM) and compare them with a healthy reference population; in addition, we aimed to observe the association between BMD and the following variables: age at onset, disease duration, metabolic control, pubertal stage, level of physical activity, clinical parameters and nutrient intake.

Methods: A total of 30 patients with T1DM were included in the study. BMD was determined using dual-energy X-ray densitometry (DXA). Participants with a z-score of values ≥ -1 were accepted as normal; BMDs between -2 and -1 were defined as being in the low range of normality; ≤ -2 were defined as having low BMD. The 25-hydroxy vitamin D level was classified as sufficient (30-100 ng/mL), insufficient (20-30 ng/mL), and deficient (< 20 ng/mL).

Results: The percentages of patients with deficient and insufficient 25(OH) vitamin D levels were 50% and 45.8%, respectively. Lumbar spine (LS2-LS4) BMD, total body (TB) BMD and femoral neck (FN) BMD were found in the normal range for more than 80% of the subjects, with no significant differences due to gender. No strong correlations between clinical variables, biochemical parameters and nutrient intake were observed; however, a moderate positive correlation was found between serum calcium and LS2-LS4 BMD ($p < 0.05$). Regression analysis showed that serum calcium, duration of diabetes and intake of sodium and protein are significant factors in determining LS2-LS4 BMD and TB BMD.

Conclusions: Patients with T1DM had a normal mean BMD at all sites evaluated, except for two patients who had low BMD at the lumbar spine. More than 95% of patients had insufficient or deficient vitamin D levels. With respect to all the variables studied, serum calcium presented the highest significant correlation with LS2-LS4 BMD.

Palabras clave

Palabras clave de autor: Bone mineral density; Osteoporosis; Type 1 diabetes mellitus; Vitamin D; Young

KeyWords Plus: ADOLESCENTS; CHILDREN; METABOLISM; MASS

