

Changes in Bone Mineral Density in Patients with Type 1 Diabetes Mellitus

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Background

Diabetes Mellitus is a chronic hyperglycemia condition caused by absolute or relative insulin deficiency. In the course of the disease, metabolic changes occur affecting building blocks of fats, proteins and electrolytes especially calcium. DEXA machines allow early diagnosis and monitoring of minimal changes of 1%. Prolonged bad glycoregulation induces metabolic acidosis in patient with diabetes mellitus, which may cause disturbance in calcium metabolism.

Aims & Objectives

To assess changes in bone mineral density in patients with Type 1 diabetes, thus establishing a relationship between Osteoporosis and Diabetes Mellitus Type 1.

Materials & Methods

The study includes 108 patients with Diabetes Mellitus Type 1. There were 50 women and 58 men, mean age was 31.4 years and disease duration of 9.7 years, all treated

with insulin. In the control group was 80 healthy subjects, 40 men and 40 women, mean age was 33.8. The study included clinical assessment, laboratory research, hormone analysis, bone densitometry.

Results

All parameters were normal in control group. In the group with DM1, values of glucose, cholesterol and triglyceride levels exceed the upper limit of normal values. The values of PTH, Estradiol, Calcium, Phosphorus and Phosphatase were lower in the experimental group ($p < 0.001$). In the group of the patients with DM1, values of bone mineral density were 1.114 gr/cm², SD was 0.142.

Conclusions

DM1 leads to significant changes in bone mineral density of patients with this form of DM. Changes in bone mineral density in correlation with gender shows a significantly greater loss in females.