

A PRELIMINARY REPORT ON BODY COMPOSITION PROFILE OF YOUNG PATIENTS WITH CHRONIC HAEMOLYTIC CONDITIONS

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Objectives

Chronic haemolytic anaemias may compromise growth through multiple mechanisms. To date, no data exist on growth and body composition (BC; bone, muscle and fat mass) of children and adolescents with chronic haemolysis. The purpose of this study is to evaluate growth and BC of patients with thalassaemia intermedia (not on regular transfusions; thal-intermedia), alpha-thalassaemia and congenital spherocytosis.

Methods

Patients and controls underwent clinical examination, dual-energy X-ray absorptiometry (DXA) of the spine (L1-L4) and total body (less head) with paediatric software (GE Lunar Prodigy) and body composition analysis. Their metabolic bone markers were also evaluated (PICP, OC, Dpyr/Creat, Ca/Creat, CTx). All growth and body composition parameters were converted to Z-scores.

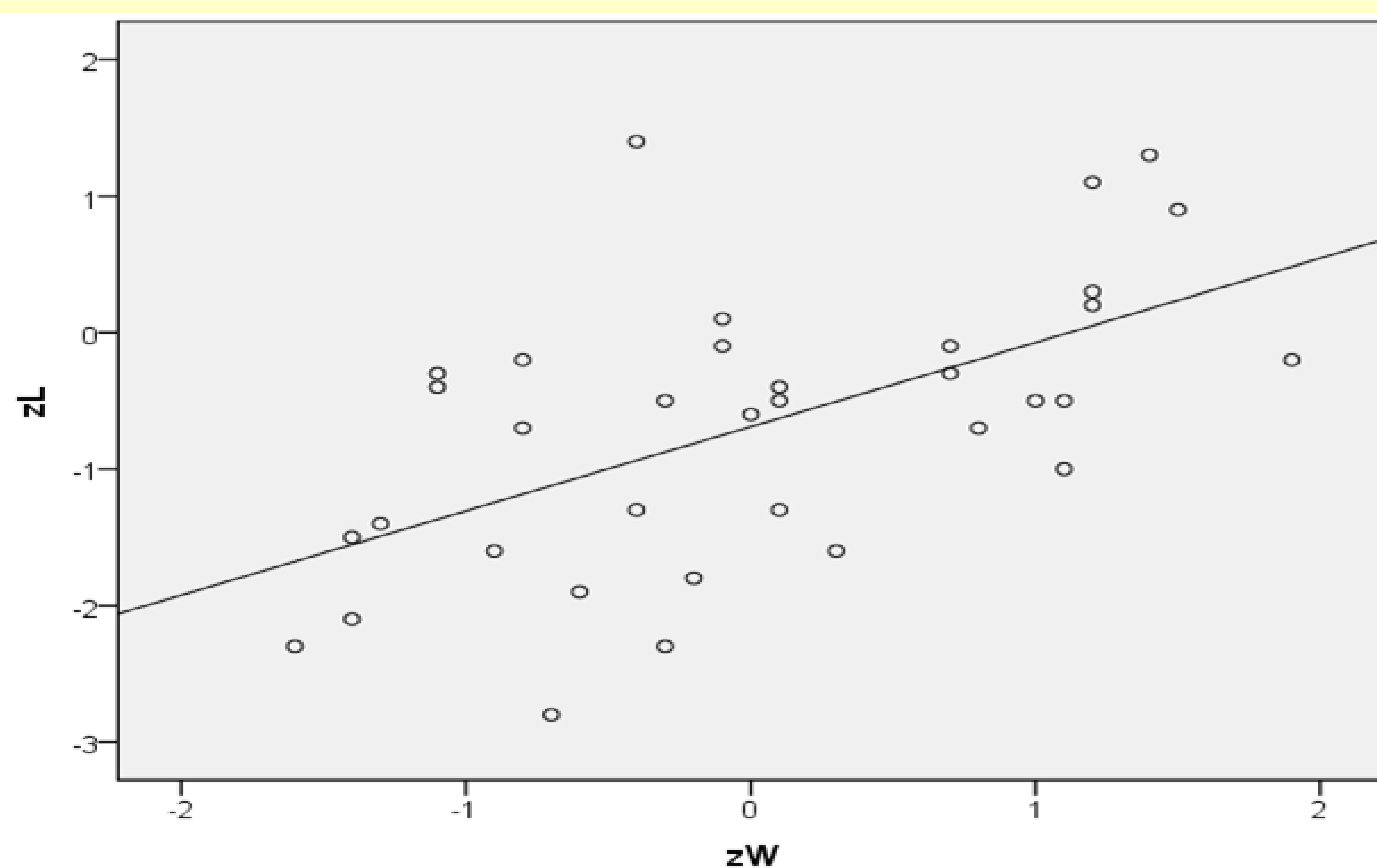


Fig.1: Correlation between lumbar and total body less head BMD

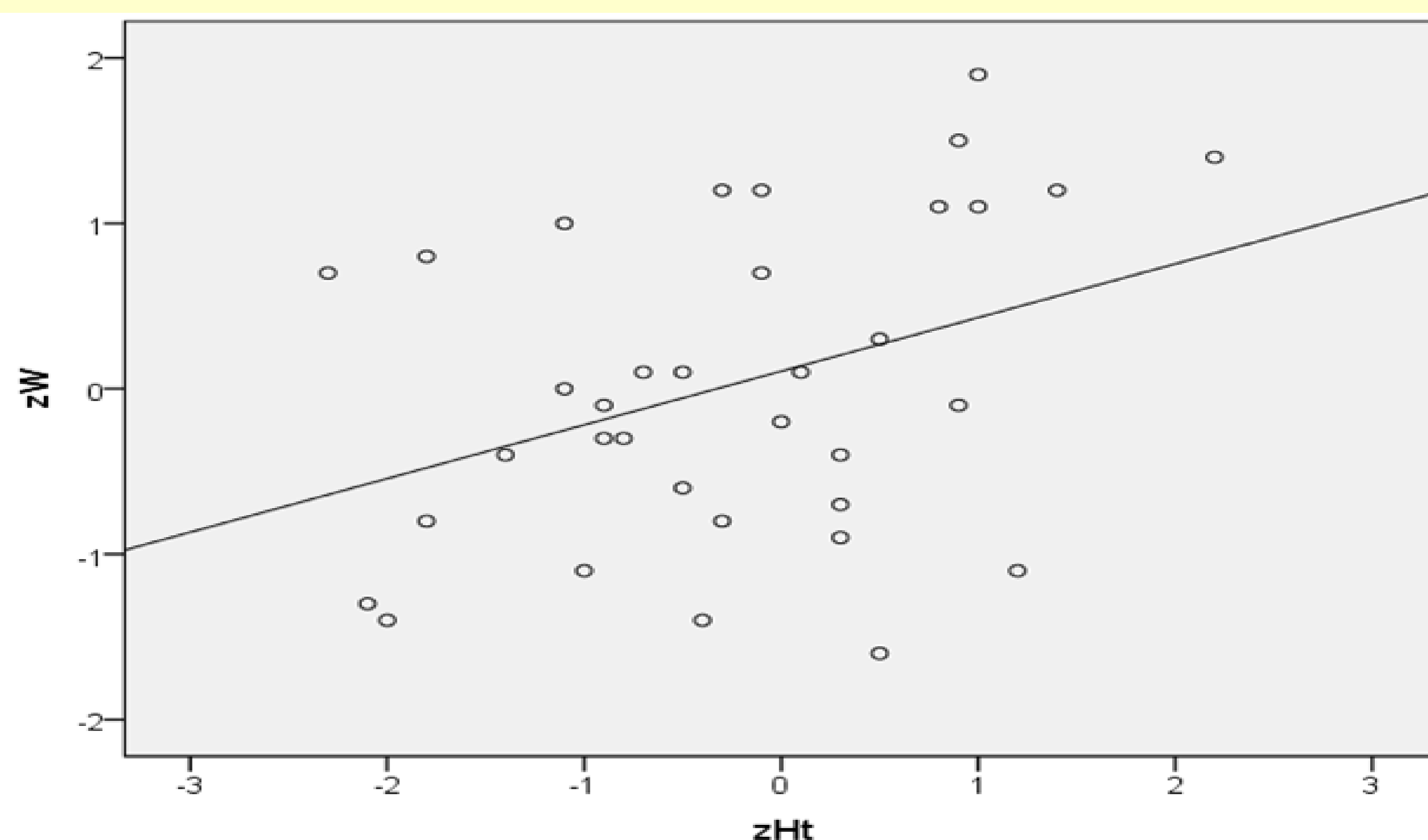


Fig.2: Correlation between total body less head BMD and height

Results

35 patients (17 female, 19 pubertal), aged 11.9 ± 3.4 years, of which 13 with thal-intermedia, 16 with α -thalassemia and 6 with spherocytosis were studied. The control group consisted of 57 subjects. As a whole, our patients had lower weight and body mass index (BMI) (Z-scores -0.2 and -0.3, respectively, $p < 0.01$). They had lower lumbar spine bone mineral density (LS BMD), (Z-score = -0.6, $p < 0.01$), whereas muscle and fat mass were unaffected. A positive correlation was found between LS BMD and total body BMD (figure 1, $r = 0.582$, $p < 0.01$), as well as between total body BMD and height (figure 2, $r = 0.368$, $p = 0.03$). Of note, patients with adequate calcium intake and regular exercise were taller than the other patients (Ht Z-score = 0.3, $p = 0.02$). Laboratory markers for bone formation and resorption were normal in the majority of cases (85%), as well as vitamin D and PTH levels. When each subgroup was analysed separately, patients with thal-intermedia appeared more affected in terms of BMD and BMI, whereas in the other subgroups only LS BMD was lower, all other parameters being comparable to controls.

Conclusions

Chronic haemolysis may adversely affect BMI and lumbar BMD. Muscle and fat mass are not particularly affected. Counselling on a healthy lifestyle and regular surveillance of bone health is justifiable, especially in thal-intermedia patients.

References

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Text

