Session 10: Calcium-Phosphorous Metabolism & Adrenal

A. de Sire, G. Iolascon
Second University of Naples, Napoli, Italy

Background. Bone involvement in patients with β-thalassemia is well known, but only few studies have analyzed bone microarchitecture and the prevalence of intervertebral disc calcifications (IDCs) in these patients.

Aim — to evaluate the bone involvement in a group of patients with β-thalassemia in terms of geometry and bone quality; moreover, we evaluated prevalence and site of IDCs in these patients.

Material and methods. Our retrospective case-control study was conducted in a population of adults with β-thalassemia, aged between 18 and 50 years. The patients were divided, according with the International Society for Clinical Densitometry, into 2 groups: subjects with Zs ≤ –2.0, below the expected range for age, and subjects with Zs > –2.0, within the expected range for age. Assessment of proximal femur geometry was performed using the Hip Structural Analysis (HSA), that provides the following parameters: Hip Axis Length (HAL), Femoral Strength Index (FSI), Cross-Sectional Moment of Inertia (CSMI), Cross-Sectional Area (CSA), Section Modulus (Z), and buckling ratio (BR). Assessment of bone quality was performed using the Trabecular Bone Score (TBS), stratifying subjects into 3 groups: with abnormal (TBS ≤ 1.200), partially (TBS >1.200 and <1.350), and normal (TBS >1.350) trabecular microarchitecture. Finally, we evaluated the prevalence of IDCs highlighted by images of Vertebral Fracture Assessment (VFA).

Results. We evaluated 49 patients with β-thalassemia, mean aged 35.16±9.59 years, divided into two groups: 25 patients with Zs ≤ –2.0 and 24 patients with Zs > –2.0. Results demonstrated all statistically significant differences (p<0.001) between the two groups in BMD, Ts and Zs (in all examined districts), and in number of fragility fractures (p=0.0339). HSA showed that there are significant differences between groups only in FSI (p=0.0068) and CSA (p=0.0041). Furthermore, TBS of patients with Zs ≤ –2.0 was significantly lower than individuals Zs > –2.0 (p=0.0006); there was a statistically significant difference between the two groups in categorized TBS (p=0.0061). Finally, we evidenced in 7 (14.29%) patients the presence of at least one IDC.

Conclusions. Our results showed that β-thalassemia is characterized not only by a reduction in BMD, but also by a geometric and qualitative bone microarchitecture involvement. HSA and even more TBS should be included in the assessment of individuals with β-thalassemia, in order to obtain a proper management and prevention of fragility fractures; furthermore, the presence of IDCs might be better investigated in these patients.

KEYWORDS
Thalassemia, bone quality, TBS.
Evaluation of bone quality, measured by trabecular bone score in patients with primary hyperparathyroidism


Hospital de la Princesa, Madrid, Spain

Introduction. Evaluation of bone quality represents a clinical challenge. Analysis of bone mineral density (BMD) provides useful, but incomplete, information, and new tools are needed. Trabecular Bone Score (TBS) is emerging as a new surrogate marker of bone texture and microarchitecture and, may, therefore, be useful to potentially evaluate the risk of osteoporosis.

Material and methods. Retrospective study of 18 patients with primary hyperparathyroidism. Clinical, analytical and MRT data were collected from clinical records. TBS was calculated by reevaluating the already existing BMD images. Patients were classified into two different groups according to their treatment: 1) 10 patients who underwent surgery, in whom TBS was evaluated before (B-S) and after surgery (A-S), and 2) 8 patients who received standard medical treatment, in whom TBS was evaluated with a time-lapse of one year.

Results. Basal age, body mass index (BMI), serum calcium, PTH and vitamin 25-OH-D levels, and T-Scores were not significantly different between the two groups. We observed a significant improvement of TBS one year after surgery in the first group (TBS B-S 1.24±0.13 vs TBS A-S 1.29±0.11; p=0.03). A subtle deterioration of TBS was observed one year after standard treatment in the second group (1.25±0.7 vs 1.22±0.7; p=0.29). Overall, surgical patients experienced a TBS increase 4.2%, whilst a decrease of 1.6% was observed in the second group (p=0.026).

Conclusion. Bone microarchitecture, measured by TBS, improves after surgery in patients with primary hyperparathyroidism. This parameter seems promising in the evaluation of bone status in primary hyperparathyroidism. Larger and longer follow-up studies deem necessary to better evaluate the potential utilities of using TBS in the assessment of bone quality.

KEYWORDS
Bone, primary hyperparathyroidism.