

Oral presentation

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Bone Mineral Density in patients with Myelomeningocele

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Background

Identification and quantification of osteoporosis in patients who have myelomeningocele has been limited until now but it should be useful in order to improve their general care and prevent fractures in the future. The aim of this study was to examine bone mineral density in patients with myelomeningocele (MMC).

Patients and methods

Eighty patients with myelomeningocele were randomly chosen from a roster of > 500 patients with (MMC) followed at a multidisciplinary spina bifida unit in a third-level public university hospital, which serves as the referral centre for these patients in our country. Patients with known metabolic acidosis, renal insufficiency, or other metabolic bone disease (i.e., hyperparathyroidism) were excluded from this study. We measured Bone Mineral Density (BMD) with total-body DXA scan with subregional areas values and the biochemical markers of bone mineral metabolism in blood and urine. To study relationships among the variables, the Chi-squared, ANOVA and lineal regression tests were applied

Results

The mean total body BMD was 1.1591 (range 0.9–1.38). Fifty two per cent of the patients were in the normal range of BMD, 31.6% were osteopenic and 15.8% were osteoporotic. The bivariate analysis demonstrated that the body mass index ($p = 0.033$) and hip flexion contractures ($p = 0.024$) were related with pelvis T-score. Neurological level ($p = 0.038$), functional ambulation ($p = 0.024$) and hip flexion contractures ($p = 0.024$) were related with leg T-score. Hip flexion contractures ($p = 0.027$) was related with leg Z-score. The only determinant for leg BMD in the multivariate approach was type of gait ($p = 0.012$; 95% CI 0.042–0.229); When we use total-body BMD as depend-

ent variable, the model showed as determinants: type of gait ($p = 0.003$; 95% CI 0.031–0.88) and sex ($p = 0.044$; 95% CI 0.003–0.155).

Conclusion

Fatter MMC (body mass index >25) patients had less osteopenia or osteoporosis than normal or thin patients. The higher neurological level, the worse BMD. Although type of gait is determinate by neurological level, this study suggests that the type of gait is the most important determinant leg and total-body BMD.