

REDUCED BONE MINERAL DENSITY IN CHILDREN AND ADOLESCENTS WITH HEMOPHILIA FROM EAST TURKEY

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Introduction and Objectives

Reduced bone mineral density (BMD) in young adults and children is a risk factor for bone fractures and osteoporosis. Patients with hemophilia may be at risk for developing reduced BMD, partly due to immobilization and recurrent haemarthrosis. Using dual energy X-ray absorptiometry (DXA), the present study aimed to evaluate BMD at both femur and lumbar spine in children and adolescents with hemophilia and their control subjects.

Materials and Methods

Twenty-six hemophilic patients (Three patients with hemophilia B, four patients with Von Willebrand Disease, 16 patients with only hemophilia A and three patients with hemophilia A plus inhibitors) and 27 controls (without joint disease) were enrolled in the study. Bone mineral density was determined by dual energy X-ray absorptiometry. The data of the patients related to height, weight, age, were obtained from records, and body mass index (BMI) was calculated ($BMI=W(kg)/H(m^2)$).

Results

The mean age of the patients was 8.8 ± 4.2 years. Three out of 26 patients (11%) had femur BMD and Z-scores <-2 and 5 (19%) patients had BMD Z scores between -1 and -2 . Three out of 26 patients (11%) had lumbar BMD and Z-scores <-2 and 9 (34%) patients had BMD Z scores between -1 and -2 . Femur BMD, BMC and Z score values were significantly lower in the hemophilia patients than the controls (BMD: $0.67 \pm 0.1g/cm^2$ for hemophilic patients vs. $1.05 \pm 0.1g/cm^2$ for controls, $p < 0.001$, BMC: $18.1 \pm 8.6g$ for hemophilic patients vs. $45.4 \pm 11.4g$ for controls, odds ratio (OR) 0.74, 95% confidence interval (CI) 0.62-0.88, $r=0.843$, $p < 0.001$, Z score: -0.5 ± 1.4 for hemophilic patients vs. 0.9 ± 0.8 for controls, OR 0.29, 95% CI 0.13-0.63, $r=0.388$, $p < 0.001$. Lumbar BMC and Z score values were significantly lower in the hemophilic patients than the controls (BMC: $19.7 \pm 8.9g$ for hemophilic patients vs. $57.1 \pm 6.9g$ for controls, OR 0.56, 95% CI 0.26-1.22, $r=0.967$, $p < 0.001$, Z score: -1.2 ± 1.3 for hemophilic patients vs. 0.8 ± 0.9 for controls, OR 0.18, 95% CI 0.07-0.45, $r=0.610$, $p < 0.001$).

Conclusions

Our results suggest that children with hemophilia have reduced BMD, BMC and Z-score values. Patients at risk are those with signs of hemophilic arthropathy. So, detection of osteopenia with using DXA scanning and screening of patients with hemophilic arthropathy and preventive therapies is highly recommended.

References

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Orthopedic issues
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