AB0844

THE ENIGMA OF FRAGILITY FRACTURE WITH NORMAL BONE MASS; EXPERIENCE OF A LIAISON SERVICE FRACTURE UNIT

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Background: The enigma of fragility fracture with normal bone mass; Experience of a Liaison Service Fracture Unit

Objectives: To describe the characteristics of patients with fragility fracture and normal DXA treated in an FLS unit.

Methods: Prospective 6-year observational study of a FLS fracture unit. Demographic variables, FRAX items, DXA and TBS were collected. The characteristics of patients with normal and abnormal DXA are described. The statistical analysis was performed by means of a descriptive, comparing the normal DXA/osteopenia/osteoporosis groups by means of contingency tables, Fisher's exact test, Student's t test or ANOVA, as appropriate, as well as regression analysis.

Results: 1,631 patients were included, 205 with normal DXA (12.5%), 747 with osteopenia (45.8%) and 680 with osteoporosis (41.6%). Patients with normal DXA were characterized by a higher percentage of males, a younger age and a higher BMI. Hip fracture was less frequent in patients with normal DXA, while the frequency of other fractures was higher. The frequency of previous fracture, history of hip fracture of the parents and secondary osteoporosis was lower in patients with normal DXA. The TBS and FRAX values were higher in the cases of normal DXA compared to osteopenia and osteoporosis. In the multiple regression analysis, excluding TBS, remained significant associated with abnormal DXA age (OR 1.04; 1.03-1.06), sex (OR 2.48; 1.71-3.58), BMI (OR 0.91; 0.89-0.94), and parent hip fracture (OR 1.99; 1.11-3.58). Including TBS <1,230 as a dichotomous variable (N = 451 cases) remained significant age (OR 1.03; 1.00-1.06), sex (OR 3.58; 1.81-7.10) and TBS (OR 5.23; 1.55-17.68).

	Bone densitometry		
	Normal	Osteopenia	Osteoporosis
N	205	747	680
Sex (male), N (%)**	54 (26)	140 (19)	84 (12)
Age in years, mean (DE)**	68.8 (10)	71.3 (9)	74.2 (10)
BMI, mean (DE)**	31.4 (10)	29.4 (5)	27.1 (7)
Type of fracture, N (%)			
Forearm**	75 (36)	284 (38)	206 (30)
Hip**	21 (10)	188 (25)	148 (22)
Humerus**	44 (21)	111 (15)	168 (25)
Spine*	14 (7)	61 (8)	79 (11)
Others**	51 (25)	102 (13)	76 (11)
FRAX items, N (%)			
Previous fracture**	18 (8)	111 (14)	145 (21)
Parent's hip fracture**	14 (7)	73 (10)	98 (14)
Smoking	23 (11)	92 (12)	80 (13)
Corticoids	14 (7)	51 (7)	42 (6)
Rheumatoid arthritis	3 (1)	16 (2)	16 (2)
Secondary osteoporosis**	24 (12)	117 (15)	150 (22)
Alcohol	10 (5)	40 (5)	28 (4)
>1 fall in the last year, N (%)\$	65 (43)	211 (40)	200 (41)
TBS, mean (DE) **	1.220 (469)	1.166 (426)	1.115 (435)
Degraded TBS, N (%)**&	3 (5)	38 (18)	47 (25)
FRAX, mean (DE)			
Major fracture**	5 (3)	9 (5)	18 (10)
Hip fracture**	1 (1)	3 (3)	9 (8)

*P<0.05; **P<0.01; \$ analyzed in 1,161 patients; & analyzed in 451 patients

Conclusion: Patients with fragility fracture and normal DXA are younger, with more frequent males and with BMI and higher TBS values.**Acknowledgement:** Fabiola Santana y Carmen Alonso

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EFFECTIVENESS AND SAFETY OF BISPHOSPHONATES IN THE TREATMENT OF SECONDARY OSTEOPOROSIS IN CHILDREN

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Background: Prevalence of secondary osteoporosis (SO) in children is an ongoing challenge, due to the rise in life expectancy of chronic diseases and the bone toxicity medication usage. Bisphosphonates (BF) has been stated as an alternative therapy, although studies targeted children are few.

Objectives: The goal was to establish the effectiveness and safety of bisphosphonate therapy in children with SO.

Methods: A retrospective study of BF treatment in children (≤16 years) with SO at a Pediatric Rheumatology Unit from 2015 to 2018.

Descriptive statistics were performed to examine anthropometric measurements, clinical features, diagnoses and treatment received. We measured bone mineral density by dual-energy x-ray absorptiometry and we expressed the results as adjusted for height-for-age Z-score (HAZ).

We assessed the treatment outcome by the change of HAZ after a year treatment and the decreasing fractures rate per year.

Afterwards we made a bivariate analysis to identify related factors with effectiveness and safety of bisphosphonates. Values of p<0,1 were considered statistically significant.

Results: In our study 12 patients were treated with BF, three of them with two different type. Table 1 shows the descriptive data.

The HAZ and the fracture rate per year after a year of treatment were significantly lower [(-2,22±1,46) vs (-1,06±1,27); p=0,04, and (1 (0,5-2) vs 0 (0-0); p< 0,01, respectively].

Table 1. Descriptive analysis

Demographic features and anthropometric measurements (n=12)	
Males, n (%)	9 (75)
Age (years), mean (±SD)	9,8 (±1,87)
BMI SD, mean (±SD)	1.03 (±2,36)
Clinical features of the patients, (n=12)	
Secondary osteoporosis cause, n (%)	
Neurologic	6 (50)
Hematologic	5 (41,7)
Before treatment fractures, mean (±SD)	1.41 (±1,16)
Vertebral fractures (Yes), n (%)	7 (58,3)
Z score* before treatment, mean (±SD)	-2.40 (±1,31)
Age at first fracture (years), mean (±SD)	8,2 (± 3,4)
Bisphosphonates treatment features of the patients (n=15)	
Drug administration via (iv), n (%)	8 (53,3)
Bisphosphonate type, n (%)	
Pamidronate	1 (6,7)
Alendronate	6 (40)
Zoledronate	7 (46,7)
Risedronate	1 (6,7)
Treatment duration (months), median (Range)	19 (11-63)
Treatment ending, n (%)	8 (53,3)
Cause of treatment ending, n (%)	
HAZ > -2 and lack of fractures after a year	5 (62,5)
Adverse effects	1 (12,5)
Exitus* ¹	2 (25,5)
Adverse effects, n (%)	
Flu-like syndrome	2 (13,3)
Asymptomatic hypocalcemia	1 (6,7)
Gastrointestinal intolerance	1 (6,7)

*¹ Due to underlying disease complications