correlation with DAS28. In contrast, GS joint inflammation is associated with structural joint damage and has strong correlation with US-detected erosion.

REFERENCES

- Backhaus M, et al. Guidelines for musculoskeletal ultrasound in rheumatology. *Ann Rheum Dis* 2001;60:641–9.
- Backhaus M, et al. Evaluation of a novel 7-joint ultrasound score in daily rheumatologic practice: a pilot project. *Arthritis Rheum* 2009;61:1194–201.
- Hammer HB, et al. Examination of intra and interrater reliability with a new ultrasonographic reference atlas for scoring of synovitis in patients with rheumatoid arthritis. *Ann Rheum Dis* 2011;70:1995–8.
- Wakefield RJ, et al. Musculoskeletal ultrasound including definitions for ultrasonographic pathology. *Journal of Rheumatology* 2005;32(12):2485–7.

Abstract AB1183 Table 1. Pearson's correlation for the ultrasound and clinical variables

Variables	Correlation coefficient	P-value
Correlation with DAS28		
PD score	0.46	0.0104*
GS score	0.21	0.2634
Correlation with number of joint recesses with ultrasound-detected erosion(s)		
PD score	0.23	0.2302
GS score	0.64	0.0001***

Statistically significant: * $p < 0.05$; *** $p < 0.001$

Abstract AB1183 Table 2. Linear regression for the ultrasound and clinical variables

Variables	Coefficient (95% CI)	P-value
Prediction of DAS28		
PD score	0.167 (0.048, 0.286)	0.0104*
GS score	0.016 (-0.012, 0.044)	0.2634
Prediction of number of joint recesses with ultrasound-detected erosion(s)		
PD score	0.371 (-0.222, 0.963)	0.2302
GS score	0.223 (0.125, 0.322)	0.0001***

Statistically significant: * $p < 0.05$; *** $p < 0.001$

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AB1184

BONE MINERAL DENSITY, TRABECULAR BONE SCORE AND 3D-DXA ASSESSMENT IN ADULT PATIENTS WITH A POSITIVE AND NEGATIVE GENETICAL TESTING FOR HYPOPHOSPHATASIA

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Background: Scarce evidence exists on the assessment of bone mineral density (BMD) in adult Hypophosphatasia (HPP). Recent studies suggest that dual-energy X-ray absorptiometry (DXA) could not appropriately predict their fracture risk and note the importance on further explore bone microstructure.

Objectives: To evaluate BMD at the lumbar spine (LS) and proximal femur (PF) assessed by DXA, the trabecular bone score (TBS) at the LS and the fracture risk assessment (FRAX and adjusted by TBS, T-FRAX) in patients with persistent low alkaline phosphatase levels (ALP) and HPP genetically confirmed (HPP TG +) compared with a group of subjects with the same biochemical abnormality and a negative HPP genetic test (HPP TG-). As a secondary objective, to assess the cortical and trabecular bone at the PF using DXA-based 3D modeling.

Methods: Seventy-three subjects with persistent low ALP levels - at least two values < 35 IU/L and none > 45 IU/L - and a genetic test for HPP performed were included. Individuals were distributed into 2 groups according to their genetic status. BMD was measured using GE-LUNAR iDXA and TBS. The 3D-SHAPER software was employed in a subgroup of 52 subjects matched by age, gender and body mass index. A clinical questionnaire and a battery of lab measures to assess risk factors for Osteoporosis were also performed.

	HPP - GT	HPP + GT	P-VALUE
DEMOGRAPHICS			
Age (years $\pm$ SD)	48.2 $\pm$ 10.1	50.1 $\pm$ 14.1	0.516
Gender (Female, n/N, %)	29/33 (88.4%)	26/38 (68.4%)	0.182
Weight (kg $\pm$ SD)	65.15 $\pm$ 15.15	72.09 $\pm$ 15.62	0.016
Height (cm $\pm$ SD)	161.94 $\pm$ 9.67	164.37 $\pm$ 7.236	0.210
BMI (kg/m ² $\pm$ SD)	25.90 $\pm$ 4.39	26.57 $\pm$ 4.08	0.011
BIOCHEMICAL DATA			
Alkaline phosphatase (U/L)	33.2 $\pm$ 6.8	24.9 $\pm$ 6.9	0.0004
Serum calcium (mg/dl)	9.45 $\pm$ 0.39	9.49 $\pm$ 0.460	0.928
Uric acid (mg/dl)	145.15 $\pm$ 27.28	171.75 $\pm$ 69.4	0.053
Serum phosphate (mg/dl)	3.54 $\pm$ 0.5	3.88 $\pm$ 0.64	0.010
Uric acid phosphate (mg/24h)	669.57 $\pm$ 181.65	752.66 $\pm$ 203.7	0.075
Vitamin D	23.11 $\pm$ 11.9	20.38 $\pm$ 9.62	0.285
PTH	47.8 $\pm$ 17.3	43.8 $\pm$ 22.04	0.286
DUAL X-RAY ABSORPTIOMETRY			
Lumbar spine aBMD (g/cm ² $\pm$ DE)	1.157 $\pm$ 0.147	1.115 $\pm$ 0.148	0.233
Femoral neck aBMD (g/cm ² $\pm$ DE)	0.948 $\pm$ 0.155	0.864 $\pm$ 0.18	0.014
Wards aBMD (g/cm ² $\pm$ SD)	0.781 $\pm$ 0.161	0.695 $\pm$ 0.140	0.021
Trochanter aBMD (g/cm ² $\pm$ SD)	0.771 $\pm$ 0.147	0.750 $\pm$ 0.095	0.494
Diaphysis aBMD (g/cm ² $\pm$ SD)	1.174 $\pm$ 0.146	1.108 $\pm$ 0.150	0.076
Total aBMD (g/cm ² $\pm$ SD)	0.981 $\pm$ 0.142	0.934 $\pm$ 0.112	0.106
TRABECULAR BONE SCORE (TBS)			
Lumbar spine TBS	1.395 $\pm$ 0.094	1.363 $\pm$ 0.126	0.261
FRAX INDEX			
Major FRAX (%)	2.136 $\pm$ 1.84	3.058 $\pm$ 1.62	0.05
Hip FRAX (%)	3.46 $\pm$ 0.87	0.84 $\pm$ 0.94	0.049
Major T-FRAX (%)	1.846 $\pm$ 0.947	3.466 $\pm$ 1.159	0.002
Hip T-FRAX (%)	0.15 $\pm$ 0.25	0.82 $\pm$ 0.83	0.001
3D-SHAPER*			
* performed in a subgroup of 52 subjects (26 per subgroup) with no differences in gender, sex and BMI			
Total cortical vBMD (mg/cm ² $\pm$ DE)	167.3 $\pm$ 25.3	155.8 $\pm$ 19	0.070
Cortical vBMD (mg/cm ² $\pm$ DE)	873.6 $\pm$ 84.4	819.4 $\pm$ 95.3	0.035
Trabecular vBMD total (mg/cm ² $\pm$ DE)	179.6 $\pm$ 39.2	161.6 $\pm$ 39.9	0.137
Integral total vBMD (mg/cm ² $\pm$ DE)	340.9 $\pm$ 51.1	313 $\pm$ 58.9	0.074

Figure 1

Results: Demographic, densitometric, TBS and 3D-DXA parameters are shown in table 1. Of the 73 subjects included, 38 (52%) had pathogenic mutations in ALPL. Between postmenopausal women and men above 50 years, 9 subjects (29%) with ALPL mutations had osteopenia and 4 (13%), osteoporosis whereas 4 (13%) and 2 (6.5%) were detected in the HPP-GT group, respectively ($p > 0.05$). Between premenopausal women and men under age 50, only 2 (5%) showed low BMD (Z-score < -2). BMD at femoral neck was significantly lower in the HPP + GT group compared to the HPP- GT group (0.864 ± 0.18 vs 0.948 ± 0.16 ($p = 0.014$), similar findings were found for Wards area (0.695 ± 0.14 and 0.781 ± 0.16 , $p = 0.021$) and a trend was observed at the femoral diaphysis ($p = 0.076$). BMD at the LS and TBS assessment did not show differences. Major, hip FRAX and T-FRAX were superior in the HPP + GT group. In terms of the parameters of bone metabolism, ALP levels were lower in the HPP + GT ($p = 0.0004$), serum phosphate levels were higher in this group ($p = 0.01$) and the rest did not show differences. The 3D-SHAPER software was applied in a subgroup of 52 subjects: volumetric BMD at the PF was lower in the HPP + GT (873.6 ± 84.4 g/cm³ vs 819.4 ± 95.3 g/cm³; $p = 0.035$) with no differences in trabecular vBMD ($p = 0.117$).

Conclusion: HPP + GT group showed less BMD at femoral neck and wards area and this trend was also observed at the diaphysis. At the femur, vBMD was also lower in this group. No differences in BMD at the lumbar spine and in TBS were found. These findings and its value for predicting the risk of fractures, specially in atypical femoral fractures, must be elucidated.

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AB1185

RADIOLOGICAL INDEX IN THE FLAT VERTEBRAE

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Background: Spine is a mechanical structure, which disposes their vertebral bodies in harmony with their stature, and progressively increasing in magnitude from the cervical to the lumbar spine (1). Defects in type II collagen gene are described, and in these cases, flat vertebra can be found, defined with flattening of the vertebral body, with irregular surface