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

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

Disclosure of Interests: None declared

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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

Carolina Tornero¹, Monica Coronado², Ludovic Humbert³, Sara García-Carazo¹, Carmen Lancha², Domenico Monachello², Luis Dominguez-Gadea², Alejandro Balsa¹, Pilar Aguado¹. ¹La Paz University Hospital, Rheumatology, Madrid, Spain; ²La Paz University Hospital, Nuclear medicine, Madrid, Spain; ³Galgo Medical, Madrid, Spain

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 ± SD)	48.2 ± 10.1	50.1 ± 14.1	0.516
Gender (Female, n/N, %)	29/33 (88.4%)	26/38 (68.4%)	0.182
Weight (kg ± SD)	65.15 ± 15.15	72.09 ± 15.62	0.016
Height (cm ± SD)	161.94 ± 9.67	164.37 ± 7.236	0.210
BMD (kg/cm ² ± SD)	23.90 ± 4.39	26.57 ± 4.08	0.011
BIOCHEMICAL DATA			
Alkaline phosphatase (U/L)	33.2 ± 6.8	24.9 ± 6.9	0.0004
Serum calcium (mg/dl)	9.45 ± 0.39	9.49 ± 0.460	0.928
Uric acid (mg/dl)	3.65 ± 0.78	3.71 ± 0.69	0.693
Serum phosphate (mg/dl)	3.54 ± 0.5	3.89 ± 0.64	0.010
Uric acid (mg/dl)	669.57 ± 181.65	752.66 ± 203.7	0.075
Vitamin D	23.11 ± 11.9	20.38 ± 9.62	0.285
PTH	47.8 ± 17.3	43.8 ± 22.04	0.286
DUAL X-RAY ABSORPTIOMETRY			
Lumbar spine aBMD (g/cm ² ± DE)	1.157 ± 0.147	1.115 ± 0.148	0.233
Femoral neck aBMD (g/cm ² ± DE)	0.948 ± 0.155	0.864 ± 0.18	0.014
Wards aBMD (g/cm ² ± SD)	0.781 ± 0.161	0.695 ± 0.140	0.021
Trochanter aBMD (g/cm ² ± SD)	0.771 ± 0.147	0.750 ± 0.095	0.494
Diaphysis aBMD (g/cm ² ± SD)	1.174 ± 0.146	1.108 ± 0.150	0.076
Total aBMD (g/cm ² ± SD)	0.981 ± 0.142	0.936 ± 0.112	0.106
TRABECULAR BONE SCORE (TBS)			
Lumbar spine TBS	1.395 ± 0.094	1.363 ± 0.126	0.261
FRAX INDEX			
Major FRAX (%)	2.136 ± 1.84	3.058 ± 1.62	0.05
Hip FRAX (%)	3.46 ± 0.87	0.84 ± 0.94	0.049
Major T-FRAX (%)	1.846 ± 0.947	3.466 ± 1.159	0.002
Hip T-FRAX (%)	0.15 ± 0.25	0.82 ± 0.893	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 ± DE)	167.3 ± 25.3	155.8 ± 19	0.070
Cortical vBMD (mg/cm ² ± DE)	873.6 ± 84.4	819.4 ± 95.3	0.035
Trabecular vBMD total (mg/cm ² ± DE)	179.6 ± 39.2	161.6 ± 36.9	0.137
Integral total vBMD (mg/cm ² ± DE)	340.9 ± 51.1	313 ± 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

Raul Maria Veiga Cabello¹, Maria Del Pilar Ahijado Guzman². ¹Ital Universitario Central de la Defensa, Rheumatology Service, Madrid, Spain; ²Ital Universitario de Fuenlabrada, Unit of Rheumatology, Fuenlabrada, Spain

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

or with nodules of Schmorl, in isolation or in a maximum of two vertebral bodies, to distinguish it from Scheuermann's disease (2). Image 1.

Objectives: Current vertebral indexes, don't measure a relation between a person height and his vertebra, and if the harmony of the individual is accepted, an index that combines these variables must be created in order to guaranteeing the objectivity of the resultant value.

Image 1: MRI of the spine with two dorsal flat vertebrae (7th and 8th) in which their vertebral bodies do not get larger farther down the column, showing disproportion in relation to immediately above and below vertebrae.

Figure 1

Figure 1. With a chest lateral plate, not rotated, and in the eighth dorsal vertebra (VD8), by proximity to the Scheuermann kyphosis, we calculate his length (LVD8) and his height (HVD8), measured in mm. Thus, from the horizontal one of his pedicle, taken at that height and parallel to the vertebral plate with superior disc contact, LVD8 is 35.50mm. Drawing a line perpendicular to the previous one (90.1°), and measured from the most sclerous area of the vertebral plate with disc contact superior to inferior, passing through the midpoint of its length (17.74mm), we obtain a HVD8 of 20.69mm.

Figure 2

Methods: Patients attending physician since 1994, both sexes, 20-55 years old, in whom Type II collagen disease or vertebral dysplasia was suspected, were selected for the study. A control group was created from patients that didn't fulfill the last inclusion criteria. Their medical histories were taken. Eighth dorsal flat vertebra in a lateral chest radiograph were assessed by tripleobserver (two rheumatologists and one radiologist) according to the defined criteria. In all selected patients, a DEXA osteoporosis screening was performed, being chest trauma exclusion criteria.

Finally, a descriptive study was carried out and a comparative study of average of vertebral index of the eight dorsal vertebra (VIDV8) results was applied: $VIDV8 = 10 \times LVD8 / (HVD8 \times \text{stature})$. Image 2.

Results: 174 subjects were analyzed, 84 in the study group and 90 in the control one, both homogeneous and without statistically significant differences in sex, age and height, with an average value in the study group of 47.15 years old, 48.8% women, 80.5 kg and 1.64 m. In control group: 44.5 years old, 52.2% women, 78.5 kg and 1.65 m. The VIDV8 value, did not show any significant difference compared to the previous variables, except for patient cohort, with an average value of 10.1 Meters-1 in control group, and 12.5 Meters-1 in pathological one ($p < 0.001$). To a value of 11,108 Meters-1 the sensitivity is 90.5% and specificity 92.2%.

Conclusion: The VIDV8 is stable for the variables sex, age, height, and weight. To an outcome of 11,108 Meters-1, it discriminates both groups with sensitivity of 90.5% and specificity of 92.2%, in order to avoid the ambiguity of the explorer.

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AB1186

PELVIC CT CONTRIBUTIONS FOR EARLY DIAGNOSIS OF INFECTIOUS SACRO ILIITIS

Maxime Sondag¹, Katia Gete², Frank Verhoeven¹, Sebastien Aubry², Clément Prati¹, Daniel Wendling¹. ¹CHRU, Rheumatology, Besançon, France; ²CHRU, Radiology, Besançon, France

Background: The sacroiliac joint is a rare localization of septic arthritis whose diagnosis is often delayed due to a heterogeneous and non-specific clinical presentation. The gold standard for diagnosis in osteo-articular infections is MRI, but its emergency access is sometimes difficult and the acquisition time of this imaging mode is long.

Objectives: To look for early CT scan signs suggestive of infectious sacro ilitis.

Methods: In a monocentric retrospective study at the Besançon University Hospital between January 2013 and March 2018, we analyzed the cases of septic arthritis of the sacroiliac joints in subjects over 18 years of age. We studied the clinical, biological and imaging data of each patient.

Results: 7 cases of infectious sacro-iliitis were collected. The characteristics of the patients were: 57% male, average age 44.1 years, left sacroiliac in 4 cases, fever in 57%, average CRP 184mg/l, average leucocytes 12500/ml. 3 patients were immunocompromised, 1 patient was postpartum. In 5 cases, bacteriological documentation was found (1 multisensitive aureus staphylococcus, 2 streptococci, 2 Gram negative bacilli). In the last 2 cases, no germ could be detected due to antibiotic therapy initiated before their hospitalization, but the clinical presentation, biology, imaging and evolution under antibiotics were in favour of an infectious etiology. The 7 patients underwent a pelvic CT scan during their hospitalization, on average 6 days after the beginning of their symptoms. 4 early signs in favour of the diagnosis of infectious sacro ilitis could be identified: fat infiltration in front of the sacroiliac joint in 86% of cases, bulging and elevation of the anterior part of the joint capsule in 43%, swelling of the piriform (71%) and iliac (71%) muscles on the sacroiliac side. All patients had at least 1 positive sign out of 4, 86% had at least 2. In 1 case, signs of osteitis were present. In 4 out of 7 cases, the injection of iodized contrast medium did not provide any additional element compared to the non-injected sequences. 5 patients underwent an MRI after the scan, which confirmed the signs in favour of the infectious nature of sacro-iliitis. MRI detected in one case an aspect of osteomyelitis of the sacrum and iliac bone, but also a hypersignal of the joint space on the T2 sequences (80%) and a better visualization of abscesses.

In the literature, there is data on the interest of the CT scan for the diagnosis of infectious sacro ilitis (1) but there is no precise description of the early signs suggestive apart from the signs of osteitis, which appear later. Hermet et al (2) advised to be careful if the scan is performed within 3 days after the onset of symptoms, but our short series shows that some signs are positive even if the pelvic scan is performed very early. The interest of the scanner, in addition to its rapid access and acquisition, allows on the injected sequences to rule out differential infectious diagnoses of abdominal-pelvic or gynaecological origin, the clinic being sometimes put in defect.

Conclusion: Despite its radiant nature, the scanner can be a preferred accessible alternative to MRI for the diagnosis of infectious sacro ilitis with the detection of 4 signs of early onset.

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AB1187

IMPACT OF IN-CLINIC ULTRASOUND ON AGE AND GENDER OF PATIENTS SCANNED AND DETECTION OF SYNOVITIS – RESULTS FROM A QUALITY IMPROVEMENT PROJECT

Yacer Asran, Surabhi Wig, Sreekanth Vasireddy. Bolton NHS Foundation Trust, Bolton, United Kingdom

Background: Inflammatory arthritis is more common in women, and the majority of patients have onset before the 6th decade. Synovitis can be difficult to diagnose clinically in the early stages, and can be especially easy to miss where the index of suspicion is low, such as men and the elderly. Ultrasound (US) can confirm synovitis and other conditions in Rheumatology, particularly where examination features are not very obvious. US has traditionally been offered via Radiology services in our hospital as a separate appointment following referral from the