- [4] Heidari B, Hassanjani Roushan MR. Rheumatoid arthritis and osteoporosis. *Caspian J Intern Med*. 2012;3(3):445-6.
- [5] Sözen T, Özişik L, Başaran NÇ. An overview and management of osteoporosis. *Eur J Rheumatol*. 2016;4(1):46-56

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.2203

AB0839

ASSOCIATION BETWEEN BODY FAT AND BONE MINERAL DENSITY IN POSTMENOPAUSAL WOMEN THROUGH RADIOFREQUENCY ECHOGRAPHIC MULTI SPECTROMETRY

Elena Kirilova¹, Nikola Kirilov², Stoyanka Vladeva¹. ¹Trakia university, Stara Zagora, Bulgaria; ²Medical University of Sofia, Stara Zagora, Bulgaria

Background: Osteoporosis is characterized by reduced bone mineral density (BMD) and increased fracture risk. Age, concomitant diseases, body mass index (BMI), body composition, etc. are important risk factors that could reflect on bone density and on the increased risk of fractures. Although obesity has been associated with increased bone mineral density (BMD) in the most studies, the relationship between body fat and BMD remains contradictory.

Objectives: The aim of this study is to determine if there is any association between body fat distribution and bone mineral density in postmenopausal women through novel ultrasound technique applicable on both lumbar spine and femoral neck.

Methods: A total of 98 women with mean age 62 ± 11 years underwent radiofrequency echographic multi spectrometry (REMS). Bioelectrical impedance analysis (BIA) software was used to assess body fat percentage. Patients were divided into two groups-with body fat $\geq 32\%$ and body fat $< 32\%$. Age, BMI, lumbar spine BMD, total hip BMD and fracture risk score (FRAX) were compared between the patients with normal body fat and those with high body fat.

Results: The mean age of the women with normal body fat was 61.1 ± 14.6 years and the mean age of the women with high body fat was 63.3 ± 9.5 years. BMI of the women with body fat $< 32\%$ was significantly lower (22.5 kg/cm^2) compared to the BMI of the women with body fat $\geq 32\%$ (30.2 kg/cm^2) ($p = 0.000$). Bone mineral density of L1-L4 and total lumbar spine BMD did not differ between the women with normal body fat and high body fat. Femoral neck BMD, trochanteric BMD and total hip BMD of the patients with normal body fat (0.604 g/cm^2 , 0.737 g/cm^2 and 0.736 g/cm^2 respectively) were significantly lower than those patients with high body fat (0.682 g/cm^2 , 0.864 g/cm^2 and 0.838 g/cm^2 respectively) ($p = 0.000$ for femoral neck BMD and trochanteric BMD, and $p = 0.001$ for total hip BMD). FRAX score for 10-year probability of major osteoporotic fracture did not differ significantly between the two groups (20.8% for women with normal body fat and 16.6% for women with high body fat). FRAX score for 10-year probability of hip fracture was also not significant between the two groups, but there was a trend to statistical significance ($p = 0.059$) (9% for women with normal fat and 4.9% for women with high fat).

Conclusion: Postmenopausal women with body fat $\geq 32\%$ showed higher femoral neck BMD compared to those with body fat $< 32\%$, but there was no significant difference in the lumbar spine BMD values between the groups. Women with high body fat did not show significantly lower FRAX score than the women with normal body fat.

REFERENCES

- [1] Paola Pisani, Francesco Conversano, Fernanda Chiriaco, Eugenio Quarta, Laura Quarta, Maurizio Muratore, Aimè Lay-Ekuakille, Sergio Casciaro. Estimation of femoral neck bone mineral density by ultrasound scanning: Preliminary results and feasibility. *Measurement*, Volume 94, 2016, pp. 480-486
- [2] Shapses SA, Sukumar D. Bone metabolism in obesity and weight loss. *Annu Rev Nutr*. 2012;32:287-309.
- [3] SILVA, Ana Carolina Veiga, et al. Factors associated with osteopenia and osteoporosis in women undergoing bone mineral density test. *Rev. Bras. Reumatol*. [online]. 2015, vol.55
- [4] Zhao LJ, Jiang H, Papasian CJ, et al. Correlation of obesity and osteoporosis: effect of fat mass on the determination of osteoporosis. *J Bone Miner Res*. 2007;23(1):17-29.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.2210

AB0840

SCREENING FOR OSTEOPOROSIS IN AN AMBULATORY AND HOSPITALIZED POPULATION: A 6-YEAR EXPERIENCE IN A UNIVERSITY HOSPITAL

Olivier Malaise¹, Marie Detroz¹, Mathieu Leroy¹, Lorenzo Leonori¹, Laurence Seidel², Michel Malaise¹. ¹Chu De Liège, Department of Rheumatology, Liège, Belgium; ²Chu De Liège, Department of Biostatistics, Liège, Belgium

Background: Osteoporosis (OP) is a serious and prevalent disease identified by Dual Energy X-ray Absorptiometry (DEXA) that can be performed in an ambulatory or an hospitalized population.

Objectives: Aims are: (1) to characterize patients who had DEXA in a university department of rheumatology to study its diagnostic efficacy; (2) to look after risk factors specific to our population; (3) to evaluate the efficiency of a non-systematic and opportunistic intra-hospital OP screening by comparing results for ambulatory and hospitalized patients in the different departments of the hospital.

Methods: From 2007 to 2012, 6406 initial DEXA from consecutive patients were prospectively encoded (1494 in 2007, 1158 in 2008, 1079 in 2009, 945 in 2010, 868 in 2011 and 862 in 2012) (identical DEXA).

Results: Cohort characteristics are the following: women 74.4%, mean age (± 1 standard deviation) 60.5 years (± 14.3), mean BMI 25.1 (± 5.1), history of corticotherapy in 30.5%, previous fracture in 29% and current hospitalization in 28.8% of cases. OP (at one of the 3 sites) was diagnosed in 22.3%, a stable value over the years, with, as a repartition, lumbar spine, femoral neck and total hip OP in 13.7%, 13.6% and 9.2% respectively. In 3.9%, OP was diagnosed at all the 3 sites. In univariate analysis, OP risk factors were age, history of fracture and low BMI (for all 3 sites), corticotherapy (lumbar spine and femoral neck) and male gender (lumbar spine). In multivariate analysis, regardless of site, age, fracture history, low BMI, and male gender increased the OP risk.

Intra-hospital screening identified OP (at any of the 3 sites) in 31.8% (vs 18.5%, $p < 0.001$ for ambulatory screening) and OP at 3 sites simultaneously in 7.9% (vs 2.3%, $p < 0.0001$). This better efficiency was stable and present for each year analyzed. The intra-hospital population tested was older [64.2 years (13.2) vs 59 (13.2), $p < 0.0001$], with more men (35.2% vs 21.7, $p < 0.0001$), more history of fracture (39% vs 24, $p < 0.0001$) and with a slightly higher BMI [25.4 (5.8) vs 25.1 (4.8), $p = 0.028$], with no difference in corticosteroid use. In addition to T-scores analyzes, Z-scores were also compared and showed similar differences with lower Z-scores in the hospitalized population.

Conclusion:

- (1) One in five DEXA identified OP at one of the three sites in the ambulatory population but only one in three in the hospitalized patients. Hospital screening is therefore essential and more efficient than the ambulatory one. Hospital time seems to be an opportunity to fill the gaps in ambulatory screening.
- (2) Intra-hospital screening targeted an older and more masculine population with more fracture history, which may explain its better performance, which does not decline over the years. Z-score differences revealed that the efficiency difference was not only due to an older age of the hospitalized population but could be secondary to more interstitial co-morbidities or treatment deleterious for bones.
- (3) In addition to conventional ones, the male gender is a risk factor for OP, recalling the importance of screening for all and not only in the female population (which represents $\frac{3}{4}$ of the cohort).

Disclosure of Interests: Olivier Malaise Speakers bureau: Amgen, Marie Detroz: None declared, Mathieu Leroy: None declared, Lorenzo Leonori: None declared, Laurence Seidel: None declared, Michel Malaise: None declared

DOI: 10.1136/annrheumdis-2019-eular.4221

AB0841

PROSPECTIVE STUDY OF BONE METABOLISM AND FRACTURE INCIDENCE IN SPINAL CORD INJURY PATIENTS DURING A PERIOD OF 24 MONTHS

Isabel Martínez Cordellat¹, Jose Ivorra Cortés¹, Fátima Torralba Collados², Carmen Grao Castellote², Cristina Alcañiz Escandell¹, Inmaculada Chalmeta Verdejo¹, Marta De la Rubia Navarro¹, Jorge Juan Frago-Gil¹, Roxana Gonzalez Mazario¹, Luis Gonzalez Puig¹, Elena Grau García¹, Rosa Negueroles Albuixech¹, Jose Eloy Oller Rodríguez¹, Francisco Miguel Ortiz Sanjuan¹, Cristóbal Páez Peralas¹, Elvira Vicens Bernabeu¹, Carmen Nájera Herranz¹, Inés Cánovas Olmos¹, Jose Andrés Román Ivorra¹. ¹Rheumatology Department. HUP La Fe, Valencia, Spain; ²Spinal Cord Injury Unit. HUP La Fe, Valencia, Spain

Background: Spinal Cord Injury (SCI) produces a wide variety of changes in systemic physiology that can lead to several complications,