ultrasonography. International collaborative studies and randomized clinical trials will help in clarifying these areas of uncertainty.

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THU0436

THE RELATIONSHIP OF BONE MINERAL DENSITY OF THE AXIAL SKELETON ON THE RISK OF PROGRESSION OF OSTEOARTHRITIS OF THE KNEE

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Objectives: To find the relationship between bone mineral density (BMD) and risk of knee OA progression in a 5-year prospective study.

Methods: 110 females with knee OA were examined twice with 5-year interval. Examination included filling questionnaires, VAS pain assessment, plain knee radiography and axial skeleton densitometry. I stage knee OA was established in 33 (30%) patients, II stage - in 46 (41.8%), III stage - in 26 (23.6%), and IV - in 5 (4.5%). Normal lumbar vertebrae densitometry BMD values were found in 45 patients (40.9%), osteopenia-corresponding BMD values - in 33 (30.0%), and osteoporosis - in 32 (29.1%). Normal femoral neck BMD values were identified in 60 (54.5%) patients, osteopenia-level BMD - in 48 (43.7%), osteoporosis - in 2 (1.8%). In all premenopausal patients (n = 15) axial skeleton BMD values were normal.

Results: In 5-year interval radiographic progression was established in 40 patients (Group 2), while in 70 (Group 1) patients no progression occurred. Both groups were comparable in terms of age and disease duration, although, more patients from Group 2 tended to have normal baseline densitometry BMD values - both in lumbar vertebrae and femoral neck: 47.5% vs 37.1%, and 62.5% vs 44.3% as compared to Group 1 patients. Patients from Group 1 more often had BMD values corresponding to osteoporosis and osteopenia: 32.9 vs 22.5%, and 55.7 vs 37.5%, respectively, as compared to Group 2 patients, although not achieving statistical significance. These differences were still identifiable after 5-year interval. Absolute BMD values at the second examination in 5 years were indicative of statistically significant increase in femoral neck and total hip BMD in Group 2 patients with knee OA progression: 0.79 ± 0.11 vs 0.73 ± 0.16 , $p < 0.01$, and 0.93 ± 0.14 vs 0.84 ± 0.25 , $p < 0.05$; respectively.

Abstract THU0436 –Table 1.

Femoral BMD differences correlating with OA stage
(Scheffe's method, $p < 0.05000$)

	I stage	II stage	III stage	IV stage
I stage		0,651186	0,996946	0,039177
II stage	0,651186		0,747927	0,213481
III stage	0,996946	0,747927		0,046981
IV stage	0,039177	0,213481	0,046981	

Abstract THU0436 –Table 2.

Lumbar vertebrae BMD differences correlating with OA stage
(Scheffe's method, $p \leq 0.05000$)

	I stage	II stage	III stage	IV stage
I stage		0,726047	0,998565	0,004315
II stage	0,726047		0,790777	0,021175
III stage	0,998565	0,790777		0,004115
IV stage	0,004315	0,021175	0,004115	

Thorough analysis of lumbar vertebrae BMD (g/cm^2) relationship with OA stages revealed that in patients with stage IV OA lumbar BMD values were significantly higher than in patients with stages I-III OA (stage I OA - BMD $0.87 \pm 0.12 \text{ g}/\text{cm}^2$; stage II OA - $0.92 \pm 0.21 \text{ g}/\text{cm}^2$; stage III OA - $0.88 \pm 0.13 \text{ g}/\text{cm}^2$; stage IV OA - BMD $1.07 \pm 0.17 \text{ g}/\text{cm}^2$) (Table1). Femoral BMD values didn't show evident correlation with knee OA stage, although there was a trend towards higher BMD values in patients with

stage IV OA compared to stage III OA ($p = 0.06$). Total hip BMD values were quite similar to lumbar BMD values ($p = 0.01$) (Table 2). BMD values were statistically significantly higher in patients with stage IV OA, than in patients with stages I and III (respectively, IV - $0.98 \pm 0.13 \text{ g}/\text{cm}^2$, I - $0.85 \pm 0.10 \text{ g}/\text{cm}^2$ and III - $0.86 \pm 0.16 \text{ g}/\text{cm}^2$). Correlation analysis also confirmed direct correlation between knee OA stage and BMD values in all evaluated compartments ($p < 0.05$).

Conclusion: Increasing during the 5-year follow up period femoral neck and total hip BMD values can be interpreted as the predictor of knee PA progression. More advanced OA stages are associated with higher BMD values. Future multicenter prospective studies are deemed to better establish the correlation between BMD and knee OA progression.

Disclosure of Interests:

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THU0437

INCIDENCE OF OSTEOPOROTIC FRACTURE IN PATIENTS WITH KNEE OSTEOARTHRITIS: CLINICAL IMPACT OF FRAX-BASED OSTEOPOROSIS TREATMENT

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Background: The relationship between osteoporosis and osteoarthritis is complex and controversial. Several previous studies have indicated inverse relationship between osteoporosis and osteoarthritis [1-2]. However, the increased bone mineral density in osteoarthritis does not confer a reduce risk for fractures in other studies [3-4]. From the Rotterdam study, although patients with knee osteoarthritis had a higher bone mineral density, their incident fracture risk was increased as compared with those without knee osteoarthritis [5]. Therefore, fracture risk assessment in patients with knee osteoarthritis should not be overlooked.

Objectives: We aimed to evaluate the incidence of high risk group of osteoporotic fracture in patients with knee osteoarthritis comparing the FRAX and WHO criteria. We also examined whether patients with knee OA differ from age, sex, and BMI matched community-based control group without knee OA in terms of the incidence of high risk group of osteoporotic fracture.

Methods: We retrospectively assessed 282 Korean patients with knee OA who visited 5 medical centers between November 2012 and November 2015. For control group, 991 subjects aged of ≥ 50 years-old were enrolled in database of health checkup centers. After matching for age, sex and body mass index, 552 subjects (276 subjects in knee OA group and 276 subjects in control group) included for this study.

Results: Osteoporosis according to WHO criteria was detected 110 (39.86%) subjects in OA group, and 101 (36.59%) subjects in control group; these difference were not significant. However, mean FRAX major osteoporotic fracture probabilities calculated with femur neck T-score were significant different between OA group and control group (7.72% vs 6.10%, $p < 0.001$). Mean FRAX major osteoporotic fracture probabilities calculated without femur neck T-score were also significant different between OA group and control group (8.85% vs 6.86%, $p < 0.001$). Mean FRAX hip fracture probabilities calculated with femur neck T-score were significant different between OA group and control group (2.48% vs 1.73%, $p < 0.001$). Mean FRAX hip fracture probabilities calculated without femur neck T-score were also different significant between OA group and control group (3.50% vs 2.37%, $p < 0.001$). When FRAX calculations without the use of femur neck BMD was adjusted for knee OA group rather than control group, 5.9% more patients would be recommend for osteoporosis treatment. Among the clinical risk factors of FRAX, previous fracture was significant different between knee OA group and control group (15.9% vs 0%, $p < 0.001$).