(TBS) could be suggested as a complementary tool that provides additional information on bone microarchitecture (1).

**Objectives:** The aim of this study was to explore the trabecular bone score (TBS) association with disease parameters and vertebral fractures in axial spondyloarthritis.

**Methods:** We designed a cross-sectional study of patients with axial spondyloarthritis diagnosed according to the ASAS 2009 classification, recruited from December 1st, 2021. SA patients excluded were those with a history of cancer, hyperparathyroidism, chronic kidney disease, cirrhosis, and those using osteoporosis and steroid drugs or having a body mass index (BMI) of more than 36kg/m². The BMD of lumbar, hip, femoral neck, 33% distal radius of non-dominant hand and TBS were measured with Dual-energy X-ray absorptiometry (DXA). Vertebral fractures (VF) were assessed by vertebral fracture assessment (VFA). They were defined as grade 2 or 3 according to Genant criteria. Clinical data and laboratory tests collected simultaneously with the DXA scan were analyzed. The associations between TBS and disease parameters: Ankylosing Spondylitis Disease Activity Score (ASDAS), Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Bath Ankylosing Spondylitis Function Index (BASFI), and the Modified Stoke ankylosing spondylitis spinal score (mSASSS) were studied by correlations and multiple linear regressions using SPSS 20.

**Results:** Forty-three patients were included with a mean age of 36.42 ± 13.10 years and a mean disease duration of 12.88 ± 7.69 years. The mean TBS was 1.370 ± 0.098 and the mean lumbar BMD was 0.937 ± 0.210. The mean TBS was significantly lower in patients with comorbidities (high blood pressure and diabetes). TBS was also positively associated with lumbar BMD (r = 0.386; p = 0.011), hip BMD (r = 0.621; p < 0.001), but not forearm BMD (r = 0.276; p = 0.073). Moreover, TBS was negatively associated with age (r = -0.525; p < 0.001), BMI (r = -0.440; p = 0.001), and waist circumference (r = -0.558; p < 0.001). TBS was also negatively correlated with the ASDAS score (r = -0.378; p < 0.014), while there was no correlation with the BASDAI, BASFI, and mSASSS. The association of TBS and ASDAS CRP was significant at adjustment on disease duration and mSASSS (p = 0.017; β = -0.363; [−0.056; −0.06]). However, there was no association between TBS and VF.

**Conclusion:** In SA patients, TBS was negatively associated with disease activity score and positively associated with axial bone loss. This result may explain bone fragility in active spondyloarthritis. No clear association was found between TBS and VF in the present study.

**REFERENCES:**

**Disclosure of Interests:** None declared

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**AB1026**

ASSOCIATION BETWEEN TRABECULAR BONE SCORE, 10-YEAR PROBABILITY RISK FOR FRACTURE, AND VERTEBRAL FRACTURES IN RHEUMATOID ARTHRITIS

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**Background:** Trabecular bone score (TBS) utility in vertebral fracture prediction is still questionable.

**Objectives:** To evaluate the association of trabecular bone score (TBS), the fracture risk assessment tool (FRAX), and TBS adjusted FRAX with prevalent vertebral fractures (VF) in Rheumatoid Arthritis (RA).

**Methods:** This is a cross-sectional study of RA patients diagnosed according to ACR/EULAR 2010 criteria and recruited in our rheumatology department. Patients with an age under 40 or above 90, diabetes, thyroid disease, hyperparathyroidism, cancer, cirrhosis, renal clearance < 70 mL/min, and those using osteoporosis drugs or having a body mass index (BMI) of more than 36kg/m² were excluded. TBS, bone mineral density (BMD), and vertebral fracture assessment (VFA) were obtained using dual-energy X-ray absorptiometry (DXA). We used the FRAX tool to assess the 10-year probability of major osteoporotic fracture (MOF-FRAX) and hip fracture (HF-FRAX) with and without BMD. These parameters were further adjusted for TBS (FRAX/TBS-MOF and FRAX/TBS-HF). Prevalent VF was evaluated by radiologists using VFA. We defined patients with prevalent VF as patients who had moderate-to-severe degree VF’s of the thoracic and lumbar spine (T4 to L4) according to Genant criteria. Osteoporosis was defined as a T-score < -2.5 in the lumbar spine, femoral neck, or 1/3 of the non-dominant forearm location. Clinical data, results of radiological and laboratory tests performed on the same day of the DXA scan were collected. Receiver operating characteristic curves were generated by SPSS 20 to study the predictability of each parameter for VF.

**Results:** Sixty-nine patients were enrolled, and 66.7% of them were menopausal. Their mean lumbar spine, hip, and forearm BMD were 0.817 ± 0.155, 0.681 ± 0.676, and 0.572 ± 0.119, respectively. The mean TBS was 1.328 ± 1.041. Thirty-nine patients (56.5%) had osteoporosis. Nine patients (13%) had moderate to severe VF’s with predominance at the thoracic spine (77.8%). There was a negative correlation between MOF-FRAX score and lumbar spine BMD (r = -0.473; p < 0.001), and also hip BMD (r = -0.530; p < 0.001), while there was no correlation between MOF-FRAX score, HF-FRAX and TBS. The areas under curves were 0.824, 0.800, 0.792, and 0.443 for the FRAX-MOF score adjusted for BMD, FRAX-MOF score, FRAX-MOF score adjusted for TBS, and TBS, respectively.

**Conclusion:** In this study, MOF-FRAX score showed a better correlation with BMD than TBS. It was also superior to TBS and adjusted FRAX in identifying prevalent VF’s in RA patients.

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**AB1027**

CLINICAL EFFICACY OF SEQUENTIAL TREATMENT AFTER ROMOSOZUMAB IN PATIENTS WITH RHEUMATOID ARTHRITIS FOR 18 MONTHS

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**Background:** Romosozumab (ROMO), a monoclonal antibody that binds sclerostin, increases bone formation and decreases bone resorption. And although it is a novel therapeutic agent for osteoporosis, which has shown high effects of increasing bone density and inhibiting fragile fracture in overseas clinical trials. However, the clinical efficacy for rheumatoid arthritis complicated with osteoporosis (RA-OP) is unknown.

**Objectives:** To evaluate the clinical efficacy of ROMO for 12months and denosumab (DMB) 6months in patients with RA-OP for 18 months.

**Methods:** RA patients diagnosed according to the 2010 ACR/EULAR criteria. All patients met at least one of the following criteria were eligible: a bone mineral density T score of -2.5 or less at the lumbar spine or total hip and either one or more moderate or severe vertebral fractures or two or more mild vertebral fractures. All patients were initiated ROMO from between April, 2019 and March, 2020. The total number of patients was 12 cases. The ROMO dose was 210mg at once every 1 months. After 12 months of ROMO, all cases were changed to DMB. In all cases native or activated vitamin D has been used. We reviewed the results for 12 months about the increase and decrease of bone mineral density (BMD) of lumbar spine(LS) and total hip(TH) by DEXA and bone turnover markers, intact n-terminal propeptide type I procollagen(PINP) and tartrate-resistant acid phosphatase form 5b(TRACP-5b).

**Results:** He gender was all female. The mean age was 72.8 ± 70; disease duration was 17.7 ± 16.5 years; the body mass index was 19.4 ± 3.1 and the FRAX was 36.0 ± 14.9. Clinical findings related to RA-OP at baseline were as follows: CRP 1.25 ± 1.75; DAS28-3CRP 3.45 ± 0.99; HAG 1.56 ± 0.99 and, bone turnover markers and bone mineral density at baseline were as follows; PINP 62.4 ± 36.2; TRACP-5b 485 ± 262; LS-BMD and T-score 0.79 ± 0.14/cm² and -2.82 ± 0.99 and TH-BMD 0.55 ± 0.07/g/cm² and -3.14 ± 0.53/cm². The rate of increased PINP from baseline to 1, 3, 6, 12 and 18 months were each 116.3 ± 68.7% at 1 month, 135.0 ± 131.3% at 3 month, 126.1 ± 177.0% at 6 month, 83.7 ± 179.1% at 12 month and -45.1 ± 35.7% at 18 month and decreased TRACP-5b were -13.0 ± 91.4% at 1 month, 6.9 ± 38.6% at 3 month, 20.0 ± 63.4% at 6 month, 14.8 ± 64.5% at 12 month and -11.4 ± 95.9% at 18 month. The rate of increased LS-BMD from baseline to 6, 12 and 18 month were 10.8 ± 8.0%, 15.2 ± 9.5% and 18.9 ± 10.4% and TH-BMD were 4.1 ± 4.5%, 5.7 ± 6.3% and 8.4 ± 8.1% (Figure 1, 2).

**Conclusion:** Clinical efficacy of treatment with ROMO for 12months and DMB for 6months for RA-OP was extremely effective and has the high potential to be an important option in the treatment of RA-OP.

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