

WORLD CONGRESS
ON OSTEOPOROSIS,
OSTEOARTHRITIS AND
MUSCULOSKELETAL
DISEASES

VIRTUAL CONGRESS

March 24-26, 2022



2022 VIRTUAL



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AbstractBook

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SMOKING: THE SILENT KILLER OF THE BONES TOO?C. S. Ciofu¹, B. I. Gavrilă²

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Objective: We present the case of an elder female patient, 76 years old, diagnosed with postmenopausal osteoporosis (T-score lumbar spine -3.1), for which, in 2019, treatment is initiated with vitamin D 2000 IU and 1200 mg of calcium daily. She is also known with high blood pressure stage III, ischemic heart disease, aortic atherosclerosis, chronic bronchitis due to smoking (10-15 cigarettes per day for about 50 y).

Methods: After 1 year, in January 2020, she repeats DXA exam that shows the progression of the T-score in the lumbar spine (-3.4) and osteopenia at the hips (mean T-score -1). In this context, in association with vitamin D/calcium we add risedronic acid 35 mg weekly. Also, the patient is encouraged to perform daily physical activity within tolerance and quit smoking.

Results: In February 2021, the patient presented for re-evaluation, complaining of pain in the thoracic spine. At the physical examination we note kyphosis, and x-rays of the spine shows thoracic vertebral fractures. The DXA exam indicates a T-score progression (-3.6 vs. -3.4) compared to the last 1 year assessment. The FRAX score is also achieved: 10-y probability of fractures 8.8% for major osteoporotic fracture and 1.9% for hip fracture. Calcium and vitamin D are dosed with normal values. We add to the basic treatment for osteoporosis denosumab 60 mg subcutaneously at 6 months. Several laboratory investigations are also being performed to rule out the secondary cause of osteoporosis as thyroid function tests including thyroid stimulating hormone, free T4, cortisol levels, parathormone, glycated hemoglobin-normal values, no inflammatory tests present. The evaluation from February 2022, we find again the progression of the T-score (-4). The patient tells us that due to the psychological stress of the last year, the number of cigarettes smoked daily has been increased to 20.

Conclusion: Given the progression of T-score values, in terms of identifying a secondary cause of osteoporosis, is smoking the real candidate for progression of osteoporosis?

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ANGIPOIETIN-LIKE PROTEIN TYPE 4 AS AN INDICATOR OF SPINAL OSTEOPOROSIS IN RHEUMATOID ARTHRITIS PATIENTSV. A. Aleksandrov¹, G. Y. A. Osmanova¹, A. V. Aleksandrov¹, L. N. Shilova²

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Objective: To evaluate the role of angiotensin-like protein type 4 (ANGPTL4) in the progression of osteoporotic processes in rheumatoid arthritis (RA).

Methods: The study included 86 patients with reliable RA who underwent radiography of the lumbar spine and DXA with assessment of BMD twice (at admission and 24 months later). The Ray-Bio Human ANGPTL4 ELISA Kit (RayBiotech, USA) was used to detect ANGPTL4 in blood serum.

Results: A strong association of ANGPTL4 and osteoporotic changes in the lumbar spine (BMD L₁₋₄, r=-0.37, p=0.026) was found. Also the level of ANGPTL4 in RA patients correlated significantly with the Sharp score of radiological changes (r_s=0.39), the number of fractures at L₁₋₄ at baseline (r_s=0.32) and after 24 months (r_s=0.51). Patients with high ANGPTL4 levels (>6.8 ng/mL) had a significantly higher risk of spinal fracture at the L₁₋₄ level than patients with normal ANGPTL4 levels (OR: 2.88; 95%CI 0.81-10.2). The previously found correlation of ANGPTL4 with elevated levels of circulating RANKL, a serum marker of bone resorption, confirms the role of ANGPTL4 in osteoclast-mediated bone resorption. It is believed that ANGPTL4 can also regulate osteoclast activity through the hypoxia/HIF (hypoxia-inducible factor) system, increasing osteoclastic bone resorption.

According to the anamnestic data, 13 (15%) people initially had a fracture in the lumbar spine. During the 2 y of follow-up, new vertebral fractures were noted in 7 (53.8%) people with a history of fractures and in 20 (27.4%) patients without previous fractures. The presence of low-energy fractures in RA patients in the lumbar spine was associated with a higher risk of fractures within 2 y (OR: 3.09; 95%CI 0.93-10.3).

Conclusion: ANGPTL4 can act as an indicator of osteoporotic processes in the spine in RA. RA patients with baseline vertebral fractures at the L₁₋₄ level and high serum ANGPTL4 concentrations are at high risk for low-energy fractures at follow-up.