the model also seems to explain about 4% more of TBSv, in fact lowest number (regardless of other variables) appear to have interference on TBS ($p = 0.020$)

Conclusion: This study shows that a more severe microarchitectural bone defect correlates with gastrointestinal involvement in term of symptom related to intestinal disbiosis and with selected blood biochemical markers of malnutrition.

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FRI0498 HIGH SERUM URIC ACID LEVEL IS ASSOCIATED WITH LOWER INCIDENCE OF OSTEOPOROSIS IN POSTMENOPAUSAL WOMEN: DATA FROM THE KOREAN NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY

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Background: Osteoporosis is one of the most common morbidities in postmenopausal women. Although serum uric acid (SUA) accounts for about 50% of extracellular antioxidant activity, the role of hyperuricemia in osteoporosis, a condition characterized by high oxidative stress level, has not been investigated in a Nation-wide scale.

Objectives: The aim of this study is to evaluate an association between SUA and incidence of osteoporosis in postmenopausal women.

Methods: Data of postmenopausal women from the 2016 Korean National Health and Nutrition Examination Survey were included and retrospectively analyzed. Weighted prevalence and logistic regression analysis were used to determine the incidence of osteoporosis and the effect of SUA on osteoporosis in postmenopausal women.

Results: One-thousand three-hundred eighty-two (weighted $n = 7,064,137$) of postmenopausal women were observed. Of these, 401 (29.0%, weighted $n = 1,880,586$) women developed osteoporosis. Mean age of participants was 63.2 years and mean of SUA was 4.4 mg/dL. The effect of SUA on osteoporosis in postmenopausal women was not statistically significant according to univariable logistic regression (OR 0.977, 95% CI 0.855–1.116, $p = 0.729$). However, SUA was negatively associated with incidence of osteoporosis in postmenopausal women with statistical significance after adjusting for age, obesity, amount of drink, smoking, intake of calcium, rheumatoid arthritis, thyroid diseases, and loss of activity (OR 0.867, 95% CI 0.752–0.999, $p = 0.048$).

Conclusion: Our data demonstrated that high SUA is associated with lower incidence of osteoporosis in postmenopausal women. This result suggests a protective role of SUA in metabolic bone diseases.

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FRI0499 EFFICACY OF POSTMENOPAUSAL OSTEOPOROSIS TREATMENT BY COMBINATION OF DENOSUMAB WITH PLAIN VITAMIN D OR WITH ANALOG OF VITAMIN D ALFACALCIDOL

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Background: The superiority of the treatment of osteoporosis (OP), using the combination of alendronate (ALN) and alfacalcidol ($1\alpha D3$) to ALN treatment with cholecalciferol (D3) in both genders, has been demonstrated¹.

Objectives: To compare the efficacy of two-year OP treatment with denosumab (Dnab) with D3 to the treatment of Dnab with $1\alpha D3$.

Methods: Retrospective study included 58 postmenopausal OP patients treated at the Institute of Rheumatology in Belgrade. Average age was 74.5 ± 16.22 years, bone density (BMD) on the lumbar spine (L1L4) was $1.102 \pm 0.0878 \text{ g/cm}^2$, total hip (TH) $0.728 \pm 0.0324 \text{ g/cm}^2$, femoral neck (FN) was $0.600 \pm 0.1281 \text{ g/cm}^2$, and the bone quality expressed as trabecular bone score (TBS) was 1.222 ± 0.3457 , at study inclusion. BMD and TBS were measured using Hologic Prodigy DXA device. All women had primary OP, and 50% had fracture in the adult age. Average serum level 25 (OH) D3 was $29.8 \pm 6.67 \text{ ng/mL}$. Out of all, 68.4% patients had previous OP treatment, during 4.2 ± 3.45 years, 55.2% had used oral bisphosphonates (BF), 8.62% parenteral BF, 3.44% strontium ranelate, while one patient (1.72%) received a full course of teriparatide. Patients were assigned by the doctor's decision to be treated either by combination of Dnab 60mg s.c. every 6 months and D3 800–1000 IU daily ($N = 29$) or Dnab and $1\alpha D3$ $1 \mu\text{g}$ daily ($N = 29$). Safety was monitored clinically and laboratory at six-month intervals - serum calcium (Ca), ionised Ca, phosphorus, 24 hours of calciuria, incidence of falls and fractures. Serum 25 (OH) D3 and parathormone (PTH) were observed once a year, as well as BMD and TBS. Analytical statistical analysis was done by student t - test and Fisher's test.

Results: The patients were mutually comparable in term of age, previous fractures, BMD and TBS, laboratory findings, previous OP treatment. After 2 years of study treatment, there was no significant difference in the increase in BMD on the L1L4 between Dnab plus D3 and Dnab plus $1\alpha D3$ group (6.4% vs. 6.5%), as well as on the TH (3.3% vs 3.4%). Statistically significantly higher BMD on FN (2.0% vs 5.9%, $p < 0.001$), as well as TBS increase (2% versus 6.7%, $p < 0, 05$) in Dnab plus $1\alpha D3$ group was found. Serum calcitriol was higher (30.54 vs 35.1 ng/mL), while PTH was statistically significant in Dnab plus $1\alpha D3$ group (48.6 vs 31.2 pg/mL , $p < 0.001$) at the end of study. The incidence of hypocalcaemia was 2.3% in the Dnab plus D3 group, and 1.0% in the Dnab plus $1\alpha D3$ group, hypercalcaemia was not found in any. The clinical fractures incidence after 2 years of follow-up was 6.9% in Dnab with D3 and 3.44% in the Dnab plus $1\alpha D3$ group, which was not statistically significant, as well as occurrence of falls, recorded more frequently in Dnab plus D3 group (31% vs. 13.8%).

Conclusion: Dnab in combination with $1\alpha D3$ is more effective and equally safe OP treatment compared to Dnab with D3, in term of increasing FN BMD and improvement of bone micro-architecture.

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