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POSTERS

P01. GENDER FEATURES OF VERTEBRAL PAIN SYNDROME DEPENDING ON BONE MINERAL DENSITY

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Objectives: The aim is to study the frequency of vertebral pain syndrome in men and women of older age groups depending on the bone mineral density (BMD).

Methods: We have examined 1,934 people aged 50-89 years, among them 1697 women and 237 men. The frequency of back pain syndrome was studied depending on BMD (osteoporosis, osteopenia, and norm). BMD at all sites was measured by DXA using a Prodigy densitometer (GE).

Results: The frequency of pain syndrome among older age groups is significantly higher in women compared with men (88.3% (1,499/1,697) vs 84.8% (201/237), accordingly, p = 0.01). In women of 50-89 years, with osteoporosis and no fractures in their anamnesis, pain syndrome in the thoracic and lumbar spine is significantly higher in comparison with women who have osteopenia (p = 0.01) and normal BMD (p = 0.02) and compared to men with a similar BMD state (osteoporosis; (91.8% (337/367) vs 76.2% (16/21), accordingly, p = 0.01)). The frequency of pain syndrome in the thoracic and the lumbar spine in women is associated with BMD. The presence of osteoporosis increases the risk of pain syndrome in the thoracic spine (RR = 1.27, 95%CI: 1.12-1.44, p = 0.0001). In older women, the presence of low-energy fractures significantly impacts the increasing frequency of pain in the thoracic region regardless of the BMD state.

Conclusions: The frequency of pain among older age groups is significantly higher in women compared with men. In women of older age groups, the presence of low-energy fractures significantly increases the frequency of pain in the thoracic region, regardless of the state of BMD. In women 50-89 years old, with osteoporosis and no low-energy fractures, the frequency of pain in the thoracic and lumbar regions is significantly higher compared to women with osteopenia and normal BMD, as well as compared to men with a similar BMD state (osteoporosis).

P02. BETA-2 ADRENERGIC RECEPTOR (ADRB2) GENE POLYMORPHISMS AS RISK FACTORS FOR REDUCED BONE MINERAL DENSITY

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Introduction: Beta-2-adrenergic receptor (ADRB2) has been identified in osteoblasts and osteoclasts. It is known that it is involved in the inhibition of bone formation by osteoblasts and promotion of osteoclastogenesis by increasing RANKL. The gene encoding this receptor is polymorphic and such mutations, namely Arg16Gly and Gln27Glu polymorphisms, can cause a down-regulation of intracellular trafficking of the receptor that leads to an increase in desensitization of the related reaction.

Objectives: To study the association between Beta-2 Adrenergic Receptor (ADRB2) gene polymorphisms Arg16Gly and Gln27Glu and osteoporosis.

Methods: Bone mineral density (BMD_g/cm^2) was measured by DEXA in 93 females: 61 with normal BMD (age = 44.9 ± 11.9 years; BMI = 30.6 ± 5.9 kg/m^2) and 31 with reduced bone mass/osteopenia and osteoporosis (age = 62.3 ± 13.3 years; BMI = 25.2 ± 3.9 kg/m^2). Bone remodeling parameters were analyzed by standard methods: alkaline phosphatase, alkaline phosphatase bone fraction and osteocalcin. Beta-2 Adrenergic Receptor (ADRB2) gene polymorphisms Arg16Gly and Gln27Glu were studied by PCR-RFLP and dominant and recessive models were applied to stablish genotype groups. Statistical analysis by SPSS 21.0 and statistical significance for $p < 0.05$.

Results: Age and BMI are different between normal and reduced BMD ($p < 0.001$) but didn't differ between Arg16Gly or Gln27Glu genotypes. We found significant differences between ADRB2_Arg16Gly polymorphism and BMD with a higher frequency of AA genotype in females with reduced BMD (p = 0.019). These ones showed higher risk for reduced bone mass (OR = 3.470, 95%CI 1.225-9.833). Regarding ADRB2_ Gln27Glu polymorphism, we found a tendency for a higher frequency of CC genotype in females with reduced BMD (p = 0.058). We didn't find significant differences between ADRB2_Arg16Gly and ADRB2_ Gln27Glu polymorphisms and bone remodeling parameters, neither in the general population nor in those with normal or reduced BMD.