Role of ApoE Isoforms on Bone Metabolism and Serum Lipid Profile in Post Menopausal Women.

L.S. de Souza¹, L.B.A. Rangel², M.P.¹, Santos, J.R. Almeida¹, S.R. Eis³, J.B. Graceli¹, F.L.H. Vieira⁴, T.F. Bastos Filho⁵, I.V. Silva¹

¹Morphology, ²Pharmaceutical Sciences, Universidade Federal do Espírito Santo, ³Clinical Research, Centro de Diagnóstico e Pesquisa em Osteoporose do Espírito Santo (CEDOES), ⁴Physiology, ⁵Engineering, Universidade Federal do Espírito Santo, Vitória, Brazil

Osteoporosis (OP) is one of most common diseases associated with human ageing, particularly women. It is already known that many genetic polymorphisms could play important roles on disease onset. Among these polymorphic genes is apolipoprotein E (APOE) that encodes three isoforms: ApoE2, ApoE3, and ApoE4. However, the role of APOE isoforms on OP's is still controversial. To better understand the effect of APOE genotype on osteoporosis we investigate several bone metabolism parameters in Brazilian post menopausal women (n=388, aging from 55 to 90 years-old). All patients had bone mineral density (BMD) measured by DXA in four distinct sites, femurs (head and neck), spine, and radius. Also, these patients were analyzed for bone metabolism markers, such as serum osteocalcin and carboxi-terminus fragment of collagen (CTx). It was observed that APOE3 allele is associated to higher BMDs (715±114 for APOE3 vs. 578±35 mg/cm², all other genotypes combined, p< 0.05). Also, E3 patients showed lower risk of bone fractures (Odds ratio of 0.58, n=106). On the other hand, incidence of E2 (n=60) allele was associated to low BMD in all four sites when compared to other genotypes. Also, E2 is strongly associated to elevated CTx whereas only homozygous E3 osteoporotic patients exhibited low serum CTx. Taken together, these data indicate that E2 allele is associated to high degree of bone resorption is estrogen-deprived women. However, E3 allele seems to be linked to better bone density as well as lower risk of fractures in such patients.

Financial support: CAPES, CNPq, FAPES, FACITEC.