

عنوان مقاله:

Vitamin E improved bone strength and bone minerals in male rats given alcohol

محل انتشار:

مجله علوم پایه پزشکی ایران، دوره 20، شماره 12 (سال: 1396)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Objective(s): Alcohol consumption induces oxidative stress on bone, which in turn increases the risk of osteoporosis. This study determined the effects of vitamin E on bone strength and bone mineral content in alcohol-induced osteoporotic rats. Materials and Methods: Three months old Sprague Dawley male rats were randomly divided into 5 groups: (I) control group; (II) alcohol (3 g/kg) + normal saline; (III) alcohol (3 g/kg) + olive oil; (IV) alcohol (3 g/kg) + alpha-tocopherol (60 mg/kg) and (V) alcohol (3 g/kg) + palm vitamin E (60 mg/kg). The treatment lasted for three months. Following sacrifice, the right tibia was subjected to bone biomechanical test while the lumbar (fourth and fifth lumbar) and left tibia bones were harvested for bone mineral measurement. Results: Alcohol caused reduction in bone biomechanical parameters (maximum force, ultimate stress, yield stress and Young's modulus) and bone minerals (bone calcium and magnesium) compared to control group ($P < 0.05$). Palm vitamin E was able to improve bone biomechanical parameters by increasing the maximum force, ultimate stress and Young's modulus ($P < 0.05$) while

alpha-tocopherol was not able to. Both alpha-tocopherol and palm vitamin E were able to significantly increase tibia calcium and magnesium content while only alpha-tocopherol caused significant increase in lumbar calcium content ($P < 0.05$). Conclusion: Both palm vitamin E and alpha-tocopherol improved bone mineral content which was reduced by alcohol. However, only palm vitamin E was able to improve bone strength in alcohol treated rats

کلمات کلیدی:

Alcohol-induced disorder, Bone minerals, Bone strength, Palm oil, Vitamin E

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