

OXIDATIVE STRESS ROLE IN DIABETIC OSTEOPENIA

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Oxidative stress has been related to the onset and progression of diabetic complications. This study aimed to evaluate oxidative stress condition influence in diabetic osteopenia. In this way, female Wistar rats with regular estrous cycle were randomly divided into two groups: control rats [n=15] and diabetic rats without insulin treatment [n=15]. Diabetes was induced by alloxan injection and confirmed by glycemia determination [$>250\text{mg/dL}$]. Bone mineral density [BMD] was measured by DEXA. Histomorphometry and bone biomechanical were also evaluated. Oxidant and antioxidant parameters were measured in the animals' brain. The measurements were done over a 120 days period after experimental diabetes onset. Results revealed an about 2.5-times increase in diabetic femoral trabecular distance when compared to control. Conversely, trabecular thickness, bone trabecular volume and maximum compressive force were reduced, 2.5-times, 77% and 25%, respectively, in diabetic. BMD in diabetic femur total and metadiaphyseal area were significantly reduced. Lipid peroxidation indices, measured by malondialdehyde (MDA) concentration, showed a significant increase in diabetic. However, antioxidant defense system status, measured by glutathione (GSH) content, was significantly reduced in diabetic when compared to control. Overall, these findings demonstrate that oxidative stress may be related to diabetic osteopenia pathogenesis.