

## Effects of the vigabatrin, a newer antiepileptic drug, on bone metabolism in rat

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First-generation antiepileptic drugs (AEDs) increase the risk of fracture in patients with epilepsy. Although phenytoin has been reported to adversely influence bone metabolism, little is known about the effects of recent AEDs. In this study, we examined the effects of newer AED, vigabatrin on bone metabolism in rats. Male Wistar rats were treated orally with phenytoin (20 mg/kg) or vigabatrin (50 or 200 mg/kg) daily for 6 weeks. Bone histomorphometric analysis was performed, and bone strength was evaluated using a three-point bending method. Bone mineral density (BMD) was measured using quantitative computed tomography. Administration of phenytoin significantly decreased BMD. In contrast, vigabatrin treatment did not affect BMD. However, a significant decrease in bone microstructure parameters were observed in the vigabatrin 200 mg/kg treated group. The bone formation parameters decreased after vigabatrin 200 mg/kg treatment, whereas the bone resorption parameters increased. Our data suggest that vigabatrin-induced trabecular bone rarefaction, which is associated with decreased bone formation and enhanced bone resorption may affect bone strength after chronic exposure.