Effects of carbamazepine on serum parathormone, 25-hydroxyvitamin D, bone specific alkaline phosphatase, C-telopeptide, and osteocalcin levels in healthy rats.

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Source
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Abstract
It is still not completely clear whether carbamazepine causes alterations in vitamin D status and in bone metabolism. The objective of this study was to investigate the effects of carbamazepine on serum levels of 25-hydroxyvitamin D and on biomarkers of bone formation and resorption in healthy rats. Levels of calcium, 25-hydroxyvitamin D, parathormone, C-telopeptide, bone specific alkaline phosphatase and osteocalcin were measured in 3 groups of rats consisting of controls (n=10), isotonic saline solution group (n=10) and carbamazepine group (n=10). Mean calcium levels were found to be significantly lower in healthy controls in comparison to isotonic saline solution and carbamazepine groups (10.0±0.24, 10.81±0.16, 10.93±0.22 mg/dL, respectively, p<0.05). Mean levels of 25-hydroxyvitamin D were found to be significantly higher in control group compared to isotonic saline solution group (25-hydroxyvitamin D: 23.91±1.12, 19.99±0.99 ng/mL, respectively, p<0.01). Mean levels of parathormone and osteocalcin were found to be significantly higher in control group compared to isotonic saline solution group and carbamazepine group. Parathormone levels were measured as 3.46±0.83, 1.08±0.08, 0.94±0.02 pg/mL, respectively (p<0.01). Osteocalcin levels were measured as 1.66±0.001, 1.32±0.002, 1.32±0.001 ng/mL, respectively (p<0.001). A significant difference in terms of mean serum bone specific alkaline phosphatase and C-telopeptide levels among groups was not observed. The main outcome of this prospective study in healthy rats showed no change in biochemical parameters of bone turnover during treatment with carbamazepine.