Longterm antiepileptic treatment and bone turnover

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In recent years, there is more and more evidence suggesting that epilepsy and its treatment may have negative effects on bone mineralization and calcium metabolism. While long term use of CYP450 inducing antiepileptic drugsis often associated with bone turnover threw alteration of vitamin D metabolism, mechanism of reduced BMD in long termtreatment with antiepilepticsnon inducing liver enzymesremains unclear. Objectives: Therefore, we decided to measure serum levels of 25-OHD, calcium and osteocalcin (OCLN) in epilepsy patients taking lamotrigin (LTG) (n = 50) and caprbamazepine (CBZ) (n=50) inmonotherapy for a period of at least twelve months.Also, for each participant, mineral density (BMD) was evaluated by dual-energy X-ray absorptiometry method. Results: The average value of vitamin D in serum was significantly lower in both groups compared to the normal reference range but there was no statistically significant difference in LTG group compared to CBZ group (VitD 17.97±9.15vs.17.03±12.86 , p=0,680). The average value of osteocalcinin serum was significantly higher in both groups compared to the normal reference range but there was no statistically significant difference in LTG group compared to CBZ group (OCLN 27.87±28.45 vs.26.06±10.78,p=0,124). The average value of calcium in serum was significantly lower in both groups compared to the normal reference range but there was no statistically significant difference in LTG group compared to CBZ group (Ca 1.01 ±0.06 vs. 1.02±0.12,p=0,435). BMD value in CBZ group was lower than in LTG group (T. score CBZ: 0.08± 1.38 vs. T. score LTG: 0.37± 1.02,p=0,224; Z score CBZ:-0.05±1.17 vs. Z score LTG:0,38±0,96, p=0,046) but difference was statistically significant only for Zscore. Conclusion: Longterm antiepileptic therapy is associated with bone disease, as evidenced by biochemical abnormalities and decreased BMD.

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