



### The effect of levetiracetam on depression and anti-oxidant activity in patients with epilepsy

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**Background:** Levetiracetam (LEV) has been used to treat patients with epilepsy. Previous studies reported behavioral change such as depression as a side effect of LEV. It has been well established that depression leads to reducing anti-oxidative activities. So, we conducted this study to apprized the influence of LEV on depression severity and anti-oxidative status.

**Methods:** In this prospective follow-up study, we approached to 50 patients with diagnosis of epilepsy who had planned to receive LEV therapy. We assessed depression severity using Beck depression inventory-II (BDI-II). The serum level of zinc and glutathione was measure to evaluated anti-oxidant activities. These variables were assessed at the baseline and 3 months after commencement of LEV.

**Results:** A total of 30 patients finished the follow-up. Of them, 21 patients were female. The mean of age at baseline was  $28.76 \pm 11.37$  (min-max: 16-68 years). The mean of BDI-II score at last follow-up was statistically significant compare to the baseline. The serum levels of zinc and glutathione decreased, though the reduce glutathione level was not statistically significant.

**Conclusion:** Our results show LEV may induce depression in epilepsy patients. We also found reduction in the zinc levels in our patients. This study suggests that zinc depletion can be induced through act of levetiracetam and this hypothesis should be validated by further studies.