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Potential of Ocimum sanctum as an adjuvant with sodium valproate in management of epilepsy: An experimental study in rats

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For effective control of seizures, antiepileptic drugs (AEDs) are administered at higher dose which is associated with several adverse effects. This study envisages antiepileptic and neuroprotective potential of Tulsi, a commonly used herb for its immunomodulatory property. The optimal dose of Ocimum sanctum hydroalcoholic extract (OSHE) was determined using Maximal Electroshock seizure (MES) and Pentylenetetrazol (PTZ) induced seizure models in Wistar rats (200 to 250g) after administering OSHE (200 – 1000 mg/kg) orally for 14 days. For interaction study, OSHE optimal dose in combination with maximum and submaximal therapeutic doses of valproate was administered for 14 days. Serum levels of valproate were estimated using HPLC for pharmacokinetic study. For pharmacodynamic interaction, antiepileptic effect on above seizure models, neurobehavioral effect using Morris water maze, Passive avoidance and Elevated plus maze tests and antioxidant capacity were assessed. OSHE 1000 mg/kg was found to be optimal providing 50 % protection against both MES and PTZ-induced seizures. Combination of OSHE with valproate did not alter antiepileptic efficacy of valproate significantly. However, the combination showed better memory retention potential in neurobehavioral tests and protection against oxidative stress compared to valproate alone treated groups. Pharmacokinetic parameters did not reveal any significant change in combination group compared to valproate alone. Ocimum, although having per se antiepileptic action, did not affect antiepileptic action of valproate in combination. However, combination treatment has an edge over valproate alone by better neurobehavioral function and reduced oxidative stress, predicting adjuvant potential of Ocimum in epilepsy treatment.

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