Acetylcholinesterase Activity is Inhibited in Brain of Adult Rats After Chronic Administration of Fenproporex

Model, C.S.\(^1\); Scaini, G.\(^1\); Rezin, G.T.\(^1\); Jeremias, I.C.\(^1\); Ferreira, G.K.\(^1\); Gonçalvez C.L.\(^1\); Valvassori, S.S.\(^2\); Fraga, D.B.\(^2\); Zugno, A.I.\(^2\); Quevedo, J.\(^2\); Streck, E.L.\(^1\)

\(^1\)Laboratório de Bioenergética e INCT-TM, PPGCS/UNESC, Criciúma/SC, Brazil
\(^2\)Laboratório de Neurociências, PPGCS/UNESC, Criciúma/SC, Brazil

**Introduction:** Fenproporex is an amphetamine-based anorectic and it is rapidly converted *in vivo* into amphetamine, which elevates the levels of extracellular dopamine in the brain. Acetylcholinesterase is a regulatory enzyme which is involved in cholinergic synapses and may indirectly modulate the release of dopamine. **Objectives:** Thus, we investigate the effects of chronic administration of fenproporex to adult rats alters acquisition and retention of avoidance memory and acetylcholinesterase activity. **Methods:** Male adult Wistar rats were given repeated (14 days) intraperitoneal injection of vehicle or fenproporex (6.25, 12.5 or 25 mg/kg). The animals were submitted to inhibitory avoidance task and continuous multiple trials step-down inhibitory avoidance (CMIA) for behavioral assessment. The acetylcholinesterase activity was measured in the prefrontal cortex, hippocampus and striatum. **Results:** The administration of fenproporex no produced impairment in and short-, and long-term IA or CMIA retention memory in rats. In addition, longer periods of exposure to fenproporex administration decreased acetylcholinesterase activity in prefrontal cortex and striatum of rats, but no alteration was verified in the hippocampus and hypothalamus. **Conclusion:** In conclusion, the present study showed that chronic fenproporex administration decreased of acetylcholinesterase activity in the rat brain. However, longer periods of exposure to fenproporex no produced impairment in and short-, and long-term IA or CMIA retention memory in rats.

Keywords: acetylcholinesterase; fenproporex; inhibitory avoidance; continuous multiple trial; memory.

Supported by: UNESC, CNPq and CAPES