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Organizado por

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EFFECT OF TAURINE TREATMENT ON GABA EFFLUX DURING ALCOHOL WITHDRAWAL AND RE-EXPOSURE IN THE NUCLEUS ACCUMBENS OF RATS

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Introduction: Taurine modulates GABAergic and glutamatergic systems, both related to neuroadaptive changes caused by occasional alcohol intake to dependence. Here we investigated the effect of taurine treatment on GABA levels in the nucleus accumbens (NAcc) during alcohol withdrawal and re-exposure in rats.

Methods: Adult male Wistar rats were allowed to choose from 2 bottles containing alcohol (20%) and vehicle solution (AL group) or 2 bottles containing vehicle (CT group), 24h/day, for 4 weeks. On day 22nd, half of AL rats had their alcohol bottle substituted for vehicle (WH group). CT, AL, and WH groups were subdivided to receive 100 mg/kg taurine or saline i.p. (CTS; CTT; ALS; ALT; WHS; WHT; n=6/group), 1x/day, for 6 days. On day 20th, a guide cannula was inserted into NAcc by stereotaxic surgery, and 7 days after, microdialysis was performed along 5h, with samples collected every 30 min. Baseline GABA levels were determined until the 5th sample (UFLC-MS). Immediately after, rats received taurine or saline, and its acute effect was observed over the next 150 min (GABA% from baseline). Later, rats from WH groups were re-exposed to alcohol intake for 24h (CEUA-UFRGS#36606).

Results: Taurine decreased baseline GABA levels of ALT group. In WHT group, taurine prevented the lower baseline GABA found in WHS group. Acute taurine increased GABA efflux 30 min after injection in CTT group, and after 60, and 90 min in ALT group. In WHT group, acute taurine constantly reduced GABA efflux from 30 min. Taurine doubled the alcohol intake of the ALT group from the 3rd day and decreased by 64% the alcohol re-exposure intake of WHT group.

Conclusion: Taurine produces alcohol anti-addictive effects dependent on the abstinence condition. This may be related to the restoration of GABA levels by taurine in NAcc impaired by alcohol withdrawal.

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