THE EFFECTS OF METABOTROPIC GLUTAMATE RECEPTORS 5 (MGLUR5) POSITIVE ALLOSTERIC MODULATOR (PAM), ADX-47273, ON REVERSAL LEARNING AND MEMORY IMPAIRED BY CHRONIC ETHANOL TREATMENT IN RATS

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Glutamate is involved in learning and memory processes, and chronic ethanol administration induces up-regulation of glutamate neurotransmission. PAM mGluR5, ADX-47273, potentiates mGlu5 function and can facilitate learning in spatial tasks. The aim of the present study was to investigate, whether ADX-47273 ameliorates reversal learning and memory impaired by chronic ethanol treatment in the Barnes maze test. Experiments were performed using Wistar rats. Ethanol was administered intraperitoneally (ip), once a day, at the dose of 1.75 g/kg (10% w/v), 30 min prior to each of 5 daily training sessions in the Barnes maze test. During training, rats received 2 acquisition trials per day for five days with a 5 min interval, followed by a 10-day retention interval. The retention test was performed at the 10th day of interval. Following 24 h of the retention test, reversal training was conducted for 3 days. ADX-47273 at the dose of 30 mg/kg (ip) was administered once daily, 30 min prior to the first reversal training trial. During each training session, errors and latency to locate the escape hole were measured for 3 min. Our results demonstrated that ADX-47273 (30 mg/kg) improved reversal learning and memory impaired by chronic ethanol administration in the Barnes maze test. Treatment with ADX-47273 decreased latency and errors in locating the escape hole, as compared to ethanol-treated rats. These results suggest that mGluR 5 appear to play an important role in learning and memory impairment due to chronic ethanol.