

NEONATAL TREATMENT WITH 5,7-DIHYDROXYTRYPTAMINE INDUCES DECREASE IN ALCOHOL DRINKING IN ADULT ANIMALS

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Neonatal treatment with 5,7-dihydroxytryptamine induces decrease in alcohol drinking in adult animals. M. JESSA, P. KRZĄŚCIK, W. KOSTOWSKI. Pol. J. Pharmacol., 2001, 53, 109–116.

It has long been suggested that serotonin (5-HT) neurotransmitter system activity is associated with ethanol (ETOH) intake and dependence. The authors studied the effects of neonatal 5,7-dihydroxytryptamine (5,7-DHT) lesions on voluntary alcohol drinking in adult Wistar rats. At 3 days after birth animals were pretreated with desipramine (DMI) and then given a bilateral injection of 5,7-DHT into lateral ventricles. Afterwards, the rats were kept under standard laboratory conditions until at least 2 months of age following which they were tested. 5,7-DHT induced a marked and permanent decrease in brain 5-HT content, measured in the prefrontal cortex, hippocampus and striatum, but did not modify noradrenaline content in these structures. Lesioned animals, both males and females displayed lower preference for ETOH than sham-lesioned animals. Total fluid intake was significantly higher in 5,7-DHT-lesioned than sham-lesioned rats. A significant decrease in body weight was observed in 5,7-DHT-treated rats. This effect was not caused by a significant change in food intake. Both groups showed high preference for a 0.1% saccharin. In conclusion, the present results demonstrated that neonatal treatment with 5,7-DHT evoked long-lasting neurochemical changes and reduction of ETOH intake in adult rats. Neonatally 5,7-DHT-treated rats may be considered as a suitable model in further research on the relationship between the function of central 5-HT system and alcohol intake and dependence.

Key words: 5,7-DHT neonatal lesion, alcohol drinking, rats, serotonin

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