Prenatal alcohol administration in pregnant animals and its effects on the motor and emotional behavior of their offspring (Note I)

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Abstract

Background. Alcohol is the most widely consumed drug in the world. The effects of alcohol consumption during pregnancy manifest on both the mother and the offspring. Some studies consider maternal alcohol consumption as a risk factor for ADHD.

Aims. The changes in the spontaneous motor and emotional behavior of the offspring of female rats that were administered alcohol during pregnancy were studied.

Methods. Researches were performed in Wistar rats of both sexes, born to females that were administered ethyl alcohol intraperitoneally, for 14 days during pregnancy.

The offspring rats separated from the pregnant females were assigned to 4 groups as follows: group I (L I) – female offspring of control pregnant females; group II (L II) – male offspring of control pregnant females; group III (L III) - female offspring of pregnant females receiving prenatal alcohol; group IV (L IV) – male offspring of pregnant females receiving prenatal alcohol. The offspring rats, maintained under adequate vivarium conditions, were tested at 3 times: T_1 - day 21; T_2 - day 42; T_3 - day 90. The tests used were the Elevated Plus Maze (EPM) test and the Open Field Test (OFT).

Statistical analysis was performed using the SPSS 13.0, Statistica 8.0 and Microsoft Excel applications.

Results. The disorders of motor and emotional behavior found in the male offspring of pregnant females that were administered alcohol during pregnancy are characterized by hypermotility, hyperemotionality and hypoanxiety. The changes found are ADHD-like changes; they occur early, last for a long time and increase with adult age.

Conclusions. Prenatal alcohol consumption can be a risk factor for ADHD in male offspring.

Keywords: alcohol, rats, elevated plus maze test, open field test, motor behavior, emotional behavior, ADHD.