

EFFECTS OF PRENATAL ETHANOL EXPOSURE ON HIDROELECTROLYTE HOMEOSTASIS

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The aim of the present work was to analyze the effect of prenatal exposure to moderate doses of ethanol (Pre-EtOH) during the gestational days (GD) 17 to 20 on offspring (postnatal day 28-33) hydroelectrolyte balance. We analyzed basal brain neural activity and basal/induced sodium appetite and renal response stimulated by sodium depletion (SD). Wistar pregnant dams received one daily intragastric administration of 0 or 2 g/kg/ml. SD was induced by Furosemide and low sodium diet treatment (FURO +LSD). Another group was submitted to immunohistochemical detection of Fra like (Fra-LI-ir) protein and oxytocin (OT) and/or vasopressin (AVP). Pre-EtOH group reduced water intake (1.4 ± 0.3 vs 2.5 ± 0.3 ; $n=16$) but did not affect induced sodium intake. Basal Na and K concentration of 24 h urine were reduced in Pre-EtOH pups (Na: 125.03 ± 7.06 $n=10$ vs 101.2 ± 5.97 $n=14$; K: 98.6 ± 6.32 vs 76.98 ± 5.39); besides the renal response after SD did not change. However, the correlation between urinary volume and water intake induced by FURO was significantly different (Pre-EtOH vs control). At brain level the number of Fra-LI-ir was significantly increased in AVP magnocellular neurons of Paraventricular nucleus (PVN) (PaLM: 19.4 ± 5.3 vs 39.2 ± 7.3 $n=5$ and PaMM: 9.6 ± 2.3 vs 19 ± 2.4 $n=3$) in Pre-EtOH pups. We did not observe any difference in Fra-LI positive cells along OT neurons.

In summary, Pre-EtOH exposure alters hydroelectrolyte balance regulation, since modulated induced water intake and renal responses, suggesting a reduced capacity to retain body water, possibly mediated by the chronically increased activity of AVP PVN neurons.