PW01-246 - **PRENATAL ETHANOL EXPOSURE DECREASES THE NUMBER OF SEROTONIN-IMMUNOREACTIVE (5-HT-IR) CELLS IN THE DORSAL RAPHE IN OVARIECTOMIZED ADULT FEMALE RATS**

J. Sliwowska, E. Song, L. Ellis, J. Weinberg

Department of Cellular and Physiological Sciences, University of British Columbia, Vancouver, BC, Canada

Prenatal alcohol exposure (PAE) produces physiological and behavioural abnormalities that are consistent with altered serotonin (5-HT) function in male rats. Whether alterations in the 5-HT system persist into adulthood and are present in females remains unknown.

Objectives: We investigated:

1) the effects of PAE on the number of 5-HT neurons in the brainstem in female adult rats;

2) the potential influence of ovarian sex steroids, estradiol (E_2) and progesterone (P_4) on this population of 5-HT neurons.

Methods: Female offspring from prenatal ethanol (PAE), pair-fed (PF) and ad lib-fed control (C) dams were studied in adulthood. Females were assigned to the following groups: 1) ovariectomized (OVX); 2) ovariectomized with estradiol replacement (OVX+E_2; mean plasma concentration: 64 pg/ml); 3) ovariectomized and replaced with estradiol (as above) and progesterone (OVX+E_2+P_4; mean plasma concentration for P_4:12 ng/ml); 4) Sham surgery (SHAM). Immunocytochemistry for 5-HT was performed.

Results: PAE decreased the number of 5-HT-ir neurons in the dorsal raphe (DR) in OVX females. There was no effect of PAE the number of DR 5HT-ir neurons in OVX+E_2 group, suggesting a possible neuroprotective role of estradiol in PAE animals. Treatment with both progesterone and estradiol compared to estradiol alone caused a further decrease in number of DR 5-HT-ir neurons in PAE but not C or PF animals.

Conclusion: These results provide evidence of the enduring effects of PAE on the serotonergic system, and suggest a role for the ovarian sex steroids in mediating these effects.

Funding: IMPART (CIHR) to JHS, NIH/NIAAA AA007789 and HELP to JW.

https://doi.org/10.1016/S0924-9338(10)71653-9 Published online by Cambridge University Press