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ABSTRACT BOOK

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Room Atlantic 2

POSTER SESSION 1

P062

EXPERIMENTAL AUTOIMMUNE ENCEPHALOMYELITIS DISTURBS THE REGULATION OF HPG AXIS IN RATS OF BOTH SEXES

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Aims: Multiple sclerosis (MS) is a chronic neuroinflammatory disease, more common in women than in men. Because the effects of MS on hypothalamo-pituitary-gonadal axis haven't been completely elucidated, our aim was to investigate the impact of experimental autoimmune encephalomyelitis (EAE) on reproductive functions in rats.

Methods: EAE was actively induced in Dark-Agouti rats of both sexes. Disease symptoms, weight changes, and estrous cycle phase were assessed daily. The animals were sacrificed at the onset, peak, and end of EAE. Hypothalamic, pituitary and gonadal tissues were dissected for qRT-PCR and/or protein extraction. Blood was collected for hormone measurements. In separate experiments, animals at the peak of EAE and naïve controls received an injection of a GnRH analogue - buserelin.

Results: Our results suggest hypothalamic neuroinflammation in both sexes; upregulation of mRNA for several genes was registered during EAE. Hypothalamic expression of Kiss1 and GnRH, as well as pituitary expression of Lhb, Fshb and GnRH mRNA, were affected differently in males and females. LH levels drop transiently following the course of EAE, coinciding with the arrest in diestrus in females and a drop in testosterone levels in males. Buserelin increased LH levels in both sexes. Additionally, StAR – a protein with a critical role in steroid hormone biosynthesis, had an opposite pattern of expression in ovaries and testicular interstitial cells during the disease, both on mRNA and protein level.

Conclusion: Our data indicate that EAE noticeably affects the regulation of HPG axis. Further analyses are needed to explore the details of this phenomenon.