Abstract 3735

SEXUAL DIFFERENCES IN HIPPOCAMPAL MICROGLIA OF ADULT MICE SUBJECTED TO MATERNAL SEPARATION STRESS.

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Abstract Body

Introduction: It is well known that early life adversities could affect brain development and increase the vulnerability to stress-related disorders later in adulthood. Nevertheless, the neurobiological mechanisms underlying this susceptibility have been poorly characterized and sex could be an important variable. Recently, microglia, which is involved in many neurodevelopmental processes such as neurogenesis and synaptic plasticity, has been proposed as a mediator of this stress response and early life stress could “prime” microglia to be over-responsive in future challenges. **Objective:** The analysis of hippocampal microglia morphology and distribution in the dentate gyrus (DG) of mice subjected to early stress. **Methods:** Female and male C57BL/6J mice were subjected to 3h daily maternal separation (MS) for 21 days. In postnatal day 60, adult mice undertook a single 2h restriction stress (RS). Accordingly, the experimental groups were as follows: CTRL, RS, MS, MS+RS. The DG was analyzed using immunohistochemistry techniques against Iba1 (microglia) following image analysis (ImageJ) to obtain morphological and distribution data of microglial somas and DG surface area. **Results:** Smaller DG surface area was observed in MS male mice compared with the CTRL group, but not in female. Furthermore, microglial soma area changed in a sex-dependent manner, having female mice from MS group an increased soma area than those of MS male mice. This was also observed to be region-specific, with a larger microglia soma in DG subgranular zone (SGZ) of MS female compared to MS male. Since microglia in this DG zone is involved in neurogenesis, this might suggest a possible change in the formation of new born neurons. **Conclusion:** These results revealed a different microglial response to stress depending on the animal sex and open the door to a better understanding of neurobiological basis in pathologies like depression. **Projects:** PID2020-117463RB-I00, PSI2017-83408-P, P20-00460, UMA20-FEDERJA-112 and FPU21/01318. University of Málaga.

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