P-543 - EFFECT OF PRENATAL STRESS ON EAAT2 AND EAAT3 MRNA EXPRESSION IN HIPPOCAMPUS, FRONTAL CORTEX AND STRIATAUM OF RAT OFFSPRING

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Introduction: Studies have convinced that the rodents' exposure to prenatal stress (PNS) may induce depression and anxiety to their offspring. We focused on the glutamatergic system to explore the mechanisms.
Objectives and aims: By examining EAAT2,EAAT3 (Excitatory Amino Acid Transporter 2,3), which are the only substances to inactivate glutamate in nervous system, we explored the effect of PNS on glutamatergic system.
Methods: Pregnant rats were assigned to Control group (CON), Middle period of PNS group (MPS) and Late period of PNS group (LPS). MPS and LPS rats were exposed to restraint stress on days 7-13, 14-20 of pregnancy three times daily for 45 min. EAAT2 and EAAT3 mRNA expression in the hippocampus, frontal cortex, and striatum of one month rat offspring were checked by RT-PCR.
Results: For the female offspring, EAAT2 mRNA expression of hippocampus in LPS and MPS was significantly lower compared to CON(P=0.008,p=0.003); EAAT2 and EAAT3 mRNA expression of frontal cortex in LPS were significantly lower than CON (p=0.003,p=0.013). For the male offspring, EAAT2 and EAAT3 mRNA expression of hippocampus in LPS and MPS were significantly lower (p=0.005, p=0.05); EAAT2 mRNA expression of frontal cortex was significantly lower in LPS (p=0.022); EAAT2 mRNA in LPS group and MPS were significantly lower (p=0.009, p=0.014), and EAAT3 mRNA expression of striatum in MPS was significantly lower (p=0.049).
Conclusions: Decreased EAAT2 and EAAT3 of PNS may explain the increase of glutamate in synaptic cleft and its downstream excitotoxicity. (Supported by National Natural Science Foundation of China, No: 30970952)

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