

EARLY NEONATAL MATERNAL DEPRIVATION INDUCES MEMORY DEFICITS IS MEDIATED BY CHANGES IN CHOLINERGIC TRANSMISSION

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Introduction: Maternal deprivation is widely known to result in long-lasting neurochemical, behavioral and brain structural effects. **Aims:** Here we investigated whether the cognitive aspects of these deficits might be related as the disruption of the cholinergic system and protein synthesis correlated with mnemonic process. **Methods:** The mothers were separated from their pups for 3 h per day from postnatal day 1 (PND-1) to PND-10 and then, the dams were moved to a different cage and the pups maintained in the original home cage, which was transferred to a different room kept at 32 ° C. After they reached 120-150 days of age, deprived and non-deprived male rats were sacrificed for measurement to either protein (CREB and ERK1 / 2). **Results:** Deprived and non-deprived male rats were trained in inhibitory avoidance and Morris water maze tasks and divided in three sets of experiments: 1) Oral administration of the acetylcholinesterase inhibitor galantamine (1 or 2 mg/kg) 30 min before training session reversed the memory impairments caused by maternal deprivation. 2) Deprived rats showed memory deficits in short-term-memory and long-term-memory in inhibitory avoidance. Furthermore, densitometry analysis of proteins revealed that deprived rats did not increase the phosphorylation of ERK and CREB after training in inhibitory avoidance. 3) The intrahippocampal infusion (CA1 region) of nicotine and muscarine 30 min before the training session was also able to reverse the cognitive deficits in deprived rats. **Conclusions:** That findings suggest that maternal deprivation affects memory processing at adulthood and that this impairment has been mediate by

modification of the cholinergic system or in the protein synthesis. **Financial Support:** CNPq, CAPES, FAPERGS.