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APOPTOSIS IN MEDIAL PREFRONTAL CORTEX OF PTSD RATS

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Introduction: A critical region of PTSD is the medial prefrontal cortex, which may be impaired in this disorder. Neuroimaging studies have reported reduced cortical volumes and neuronal integrity, as well as decreased function in medial prefrontal structures in this disorder.
Objectives: The aim of this study is to find whether mPFC neurons have cell apoptosis, which may lead to the dysfunction of mPFC of PTSD.
Methods: The group to test apotosis was divided into SPS after1d, 4d, 7d, 14d and control group. Expression of caspase-9 and caspase-3 were detected by immunohistochemistry, immunofluorescence, western blotting and RT-PCR.
Results: Caspase-3 was located in cytoplasm. Evaluation of Caspase-3 immunohistochemistry showed a significant increased in the SPS-1d, SPS-4d and SPS-7d compared with the normal control group, then gradually decreased in SPS-14d. Caspase-9-positive cells were expressed in the control group and the SPS groups, The positive expression was green fluorescence, which in cell body, membrane, and processes. The mRNA levels of Caspase-9 in the SPS rats were significant increased on days 1d and 4d then gradually decreased. The Caspase-3 mRNA levels peaked at SPS-7d, then decreased on SPS-14d.
Conclusions: The mPFC neuronal apoptosis through mintochodrial pathway would play an important role in the dysfunction of mPFC in post traumatic stress disorder patients.

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