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SINGLE-PROLONGED STRESS INDUCED MITOCHONDRIAL - DEPENDENT
APOPTOSIS IN HIPPOCAMPUS IN THE RAT MODEL OF POST-TRAUMATIC STRESS
DISORDER

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Objective: The aim of this study was to reveal the possible mechanisms involved in apoptosis induced by single prolonged stress (SPS) in hippocampus of post-traumatic stress disorder (PTSD) rats.

Methods: SPS is one of the animal models proposed for PTSD. Wistar rats were killed at 1, 4, 7, 14 and 28days after exposure to SPS. Expression of caspase-9, caspase-3, cytochrome c, Bcl-2 and Bax was detected by immunohistochemistry, immunofluorescence, western blotting and electron microscopy. Apoptotic cells were assessed by TUNEL method.

Results: Our results showed apoptotic cells were significantly increased in hippocampus of SPS rats, accompanied by release of cytochrome c from the mitochondria into the cytosol, increase of caspase-9 and caspase-3 expression and decrease of the Bcl-2 / Bax ratio.

Conclusion: The results indicate that SPS induced apoptosis in hippocampus of PTSD rats, and the mitochondrial pathway was involved in the process of SPS induced apoptosis.

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