

EXPRESSION OF CASPASE-12 AND GRP94 IN MEDIAL PREFRONTAL CORTEX OF PTSD RATS

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Introduction: Post-traumatic stress disorder is an important manifestation of mental and behavioral disorders after the disaster. Single-prolonged stress (SPS) is an established animal model for post-traumatic stress disorder.

Objectives: To investigate endoplasmic reticulum apoptosis pathway and unfolded protein reaction plays an important role in medial Prefrontal Cortex of PTSD rats by Single-prolonged stress (SPS).

Aims: Determined by the change of free intracellular Ca^{2+} the glucose-regulated Protein (GRP)94 and apoptosis-related caspase-12 expression.

Methods: A total of 60 healthy, male Wistar rats were selected for this study, randomly divided into a normal control group and SPS groups of 1d, 4d, 7d, 14day and 28day. Behavioral of learning and memory capabilities of rats was observed by using Morris water maze. The expression of , GRP94 and caspase-12 was detected using immunohistochemical, Western Blotting and reverse transcription-polymerase chain reaction.

Results: In this study compared with control groups the intracellular free calcium level in mPFC was increased 1 day after SPS exposure ($P < 0.05$) decreased 7 days after SPS. The expression caspase-12 peaked at SPS 7d and then gradually decreased. GRP94 express in normal control group and increased 1 day after SPS exposure peaked at SPS 7d and then gradually decreased , at SPS 28d still higher than normal control group.

Conclusions: In SPS-PTSD rats the learning and memory capabilities of the rats decline; mPFC free intracellular Ca^{2+} may relate to endoplasmic reticulum stress; Endoplasmic reticulum stress launch unfolded protein reaction Endoplasmic reticulum apoptotic process which may relate to the pathogenesis of medial prefrontal cortex abnormal function in PTSD.