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CORRELATION STUDY OF APOPTOSIS-RELATED GENES BCL-2, BAX AND PTSD IN RAT MEDIAL PREFRONTAL CORTEX NEURONAL APOPTOSIS

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Post-traumatic stress disorder (PTSD) is a significant problem,The medial prefrontal cortex (mPFC) is known to be significantly involved in emotional adjustment.

Objective: To discuss the issue of post-traumatic stress disorder (PTSD) rat apoptosis-related genes Bcl-2, Bax and medial prefrontal cortex (mPFC) neuronal apoptosis, and to provide experimental evidence to reveal PTSD pathogenesis.

Methods: The single-prolonged stress(SPS) method was used to set up the rat PTSD models There were five groups after SPS 1 day 4 days 7 days 14 days groups and control group Serum corticosterone level was determined with chemiluminescence, mPFC neuronal apoptosis changes and detection of apoptotic index were detected with transmission electron microscopy, hoechst 33342 staining and in situ nick end labeling method (TUNEL) staining. Immunohistochemistry, immunofluorescence, RT-PCR and western blotting were used to detect the expressions of Bcl-2 and Bax in the medial prefrontal cortex neuronal.

Results: PTSD rat mPFC neuron cell apoptosis, the number of apoptotic cells gradually increased with time and reached a peak at 7 days after SPS stimulates。Bcl-2 expression reached a peak at 4d and Bax expression reached a peak at 7d after SPS stimulates, Bcl-2/Bax ratio transient increased and then gradually decreased, reached a lowest point in seventh days after SPS stimulates.

Conclusions: The expression of apoptosis related genes Bcl-2 and Bax increase and their ratio imbalances are likely to be one of the reasons that lead to PTSD in rat mPFC neurons apoptosis, which may provide the pathophysiology basis for PTSD.

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