

عنوان مقاله:

Assessment of oxidative stress parameters of brain-derived neurotrophic factor heterozygous mice in acute stress model

محل انتشار:

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خلاصه مقاله:

Objective(s): Exposing to stress may be associated with increased production of reactive oxygen species (ROS). Therefore, high level of oxidative stress may eventually give rise to accumulation of oxidative damage and development of numerous neurodegenerative diseases. It has been presented that brain-derived neurotrophic factor (BDNF) supports neurons against various neurodegenerative conditions. Lately, there has been growing evidence that changes in the cerebral neurotrophic support and especially in the BDNF expression and its engagement with ROS might be important in various disorders and neurodegenerative diseases. Hence, we aimed to investigate protective effects of BDNF against stress-induced oxidative damage. Materials and Methods: Five- to six-month-old male wild-type and BDNF knock-down mice were used in this study. Activities of catalase (CAT) and superoxide dismutase (SOD) enzymes, and the amount of malondialdehyde (MDA) were assessed in the cerebral homogenates of studied groups in response to acute restraint stress. Results: Exposing to acute physiological stress led to significant elevation in the markers of oxidative stress in the cerebral cortexes of experimental groups. Conclusion: As BDNF-deficient mice were observed to be more susceptible to stress-induced oxidative damage, it can be suggested that there is a direct interplay between oxidative stress indicators and BDNF levels in the brain.

کلمات کلیدی:

Brain-derived neurotrophic -factor, Cerebral cortex, Physiological stress, Reactive Oxygen Species

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