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高压氧对大鼠创伤性脑损伤神经元凋亡及其凋亡相关因子的影响 [点此下载全文](#)

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摘要:

摘要目的:探讨高压氧对创伤性颅脑损伤后神经细胞凋亡及凋亡相关因子Caspase-3和Bcl-2表达的影响。方法:成年健康雄性Wistar大鼠66只,随机分为高压氧治疗组(HBOT)、损伤对照组和假手术组,应用自由落体法建立中度颅脑损伤的大鼠模型,采用原位末端标记法(TUNEL)染色检测脑挫伤灶周围半影区的细胞凋亡情况,用免疫组化法检测Caspase-3和Bcl-2蛋白的表达。结果:HBOT组与损伤对照组相比,凋亡细胞数和Caspase-3阳性表达均有不同水平降低,Bcl-2表达升高,差异有显著性(P<0.01)。假手术组各指标均为阴性。结论:HBOT对创伤性脑损伤后神经细胞凋亡的发生有抑制作用,其抑制神经细胞凋亡的机制可能与HBOT对促凋亡蛋白Caspase-3的抑制和抗凋亡蛋白Bcl-2的促进作用有关。

关键词: [高压氧](#) [颅脑损伤](#) [细胞凋亡](#) [Caspase-3](#) [Bcl-2](#)

The effects of hyperbaric oxygen therapy on neuron apoptosis and apoptosis-related genes after traumatic brain injury in rats [Download Fulltext](#)

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Fund Project:

Abstract:

Abstract Objective: To investigate the relationship between the therapeutic effects of hyperbaric oxygenation (HBO) on focal brain contusion and its impacts on apoptosis and Caspase-3 and Bcl-2 of apoptosis related genes after traumatic brain injury in rats. Method: Sixty-six adult healthy male Wistar rats were randomly divided into hyperbaric oxygen treatment (HBOT) group, injury control group and sham-operated group. Application of free-fall method was employed to establish the rat model of moderate traumatic brain injury. Apoptosis of neuron cells were evaluated with TUNEL technique. The cerebral expressions of Caspase-3 and Bcl-2 were analyzed with immunohistochemical technique. Result: In traumatic penumbra area the apoptosis rates of neuronal cells in HBOT group were significantly lower than those in injury control group (P<0.01). The expression of Caspase-3 in traumatic penumbra area enhanced quite obviously, following trauma; the expression of Caspase-3 in control group was obviously lower than that in HBOT group (P<0.01). However, expression of Bcl-2 in traumatic penumbra area enhanced quite obviously. The expression of Bcl-2 in HBOT group was obviously better than that in control groups (P<0.01). Conclusion: The effect of HBO is closely correlated with apoptosis and apoptosis related genes after traumatic brain injury, and apoptosis inhibition by HBO might be an important mechanism for the treatment of focal brain contusion after traumatic brain injury.

Keywords: [hyperbaric oxygenation](#) [brain injury](#) [apoptosis](#) [Caspase-3](#) [Bcl-2](#)

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