

عنوان مقاله:

Effect of Oral Mucosal Mesenchymal Stem Cells on Brain Edema, Long-Term Neurologic and Motor Outcome and Anxiety in Experimental Traumatic Brain Injury

محل انتشار:

سومین همایش بین المللی التهاب سیستم عصبی و سومین فستیوال دانشجویی علوم اعصاب (سال: 1398)

تعداد صفحات اصل مقاله: 1

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خلاصه مقاله:

Traumatic brain injury (TBI) is a major public health problem in present society and annually causes disability and death in many people. Studies in recent decades have shown that mesenchymal stem cells (MSCs) could be have beneficial effects in neurodegenerative diseases such as TBI because of high capacity in proliferation and differentiation. In this study, the effect of oral mucosal MSCs treatment wasevaluated on TBI- induced cerebral edema, long-term neurological and motor outcomes and anxiety. Materials and Methods: In this study, 84 Wistar adult male rats were used. Animals divided to four groups: sham, TBI, vehicle, stem cell (SC). Moderate diffuse traumaticbrain injury was induced by marmarou's method. Oral mucosal MSCs (2×10^6 cells) were injected intravenously 1 and 24 h after injury. The brain edema was determined by calculating brain water content 24 h and 21 days after the injury. Long-term neurological and motor outcomes were evaluated [(using neurologic severity score (NSS) and open field test (OFT), respectively] before injury, and 3, 7, 14 and 21 days post- injury. The anxiety was assessed using elevated plus maze (EPM) 3, 7, 14 and 21 days after the damage. Results: TBI was resulted in a significant increase in brain water content compared to sham group ($P < 0.001$). The administration of MSCs reduced brain water content in 24 h and 21 days after injury ($P < 0.001$). Lower NSS was observed in the group receiving MSCs in comparison with TBI group ($P < 0.001$). The anxiety decreased in the group receiving MSCs compared to sham group ($P < 0.05$). Conclusion: The results of this study show that administration of MSCs derived from the oral mucosa following TBI could probably reduce cerebral edema leading to the improvement of neurologic outcome and .anxiety. Therefore the administration of MSCs can be suggested as a new and hopeful treatment in TBI patients

کلمات کلیدی:

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