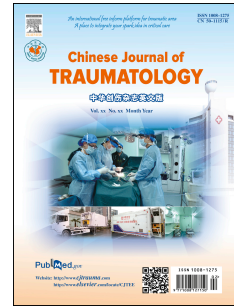


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Current understanding of neuroinflammation after traumatic brain injury and cell-based therapeutic opportunities

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Abstract

Traumatic brain injury (TBI) remains a major cause of death and disability worldwide. Increasing evidence indicates that TBI is an important risk factor for neurodegenerative diseases including Alzheimer's disease, Parkinson's disease, and chronic traumatic encephalopathy. Despite improved supportive and rehabilitative care of TBI patients, unfortunately, all late phase clinical trials in TBI have yet to yield a safe and effective neuroprotective treatment. The disappointing clinical trials may be attributed to variability in treatment approaches and heterogeneity of the population of TBI patients as well as a race against time to prevent or reduce inexorable cell death. TBI is not just an acute event but a chronic disease. Among many mechanisms involved in secondary injury after TBI, emerging preclinical studies indicate that posttraumatic prolonged and progressive neuroinflammation is associated neurodegeneration which may be treatable long after the initiating brain injury. This review provides an overview of recent understanding of neuroinflammation in TBI and preclinical cell-based therapies that target neuroinflammation and promote functional recovery after TBI.

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