سیویلیکا - ناشر تخصصی مقالات کنفرانس ها و ژورنال ها
گواهی ثبت مقاله در سیویلیکا
CIVILICA.com

عنوان مقاله:

Bone marrow-derived mesenchymal stem cell and simvastatin treatment leads to improved functional recovery and modified c-Fos expression levels in the brain following ischemic stroke

محل انتشار:

مجله علوم پایه پزشکی ایران, دوره 21, شماره 10 (سال: 1397)

تعداد صفحات اصل مقاله: 9

نویسندگان:

Gila Pirzad Jahromi - *Neuroscience Research Centre, Baqiyatallah University of Medical Sciences, Tehran, Iran*

Alireza Shabanzadeh Pirsaraei - *Electrophysiology Research Centre, Neuroscience Institute, Tehran University of Medical Sciences, Tehran, Iran*

Mina Mokhtari Hashtjini - *Electrophysiology Research Centre, Neuroscience Institute, Tehran University of Medical Sciences, Tehran, Iran*

Seyed Shahabeddin Sadr - *Electrophysiology Research Centre, Neuroscience Institute, Tehran University of Medical Sciences, Tehran, Iran*

Javad Rasouli Vani - *Departmentof Biochemistry, Faculty of Medicine, Baqiyatallah University of Medical Sciences, Tehran, Iran*

Javad Raouf Sarshoori - *Department of Anatomy, Faculty of Medicine, Baqiyatallah University of Medical Sciences, Tehran, Iran*

Jason Charish - *Genetics and Development Division, Krembil Research Institute, Toronto, ON, Canada*

خلاصه مقاله:

Objective(s): The beneficial outcomes of bone marrow-derived mesenchymal stem cell (BMSC) treatment on functional recovery following stroke has been well established. Furthermore, ۵-hydroxy-۳-methylglutaryl-coenzyme A (HMG-CoA) reductase inhibitors have also been shown to increase neuronal survival and promote the movement of BMSCs towards the sites of inflammation. However, the precise mechanisms mediating the improved neurological functional recovery in stoke models following a combination treatment of Simvastatin and BMSCs still remained poorly understood. Materials and Methods: Here, an embolic stroke model was used to experimentally induce a focal ischemic brain injury by inserting a preformed clot into the middle cerebral artery (MCA). Following stroke, animals were treated either with an intraperitoneal injection of Simvastatin, an intravenous injection of ۳ ×۱۰۶ BMSCs, or a combination of these two treatments.Results: Seven days after ischemia, the combination of Simvastatin and BMSCs led to a significant increase in BMSC relocation, endogenous neurogenesis, arteriogenesis and astrocyte activation while also reducing neuronal damage when compared to BMSC treatment alone (PConclusion: These results further demonstrate the synergistic benefits of a combination treatment and help to improve our understanding of the .underlying mechanisms mediating this beneficial effect

کلمات کلیدی:
Behavioral assessment, Bone marrow stromal cell, Brain, c-Fos, Ischemic stroke, Simvastatin

لینک ثابت مقاله در پایگاه سیویلیکا:
https://civilica.com/doc/1295212