OPEN ACCESS Freely available online

ISSN: 2168-975X
Brain Disorders & Therapy

Commentary

Application of Stem Cell Therapy in Neonatal Brain Injury

Daniel Alvarez*

Department of Cell Biology and Histology, University of the Basque Country, Leioa, Spain

DESCRIPTION

Neonatal Brain injury is a major public health concern around the world. Premature birth has become more common, and improved survival rates have resulted in a rise in the number of handicapped patients, despite a drop in long-term neurodevelopmental disability rates. The most prevalent causes of neonatal brain injury are perinatal stroke, intraventricular haemorrhage, and suffocation. Premature children are more likely to have periventricular white matter injury (periventricular leukomalacia), which is the most prevalent cause of cerebral palsy. Cerebral palsy (CP) is a collection of conditions that impact a person's ability to move, balance, and maintain posture. CP is the most common motor disability in childhood. Cerebral refers to something that has to do with the brain. Palsy means weakness or problems with using the muscles. The ability to do these transplants by injection into the vasculature rather than directly into the brain raises the chances of human studies being completed in a timely manner. Cerebral palsy causes children to have chronic motor disabilities. The causes are numerous, ranging from brain development anomalies to birth-related traumas to postnatal brain injuries.

Stem cells are different from the rest of the cells in the body. Embryonic stem cells (ESCs) and induced pluripotent stem cells (iPSCs) are pluripotent stem cells, while mesenchymal stem cells (MSCs) and other 'adult stem cells' generated from other organs are multipotent stem cells. The clinical use of pluripotent stem cells raises greater ethical and scientific concerns, including the likelihood of tumour growth. Most Cerebral Palsy clinical trials have used multipotent stem cells to prevent these potential side effects. Cells obtained from bone marrow and umbilical cord blood are the most prevalent sources of stem cells employed inthese studies. Pleuropotent stem cells, sometimes known as the sources of stem cells employed inthese studies. Pleuropotent stem cells, sometimes known as the mother or queen of all cells, have the ability to develop into a range of cell types in the body. They can theoretically divide continuously to restore other cells for as long as a human or animal is alive, essentially operating as a type of body repair mechanism. Every daughter cell of a stem cell has the option of remaining a stem cell or transforming into a more specialized cell, such as a muscle cell, red blood cell, or brain cell, as the stem cell multiplies. Autologous stem cells are regarded safe; however allogeneic stem cells have the potential to cause problems and may require immunosuppression. In animal models, stem cell therapy has been shown to be helpful in repairing wounded organs and tissues. The ability of stem cells to self-renew and differentiate results in significant neuroprotection and neuroregeneration in the brain of animals, with little risks of rejection and adverse effects. To date, neural stem cells, embryonic stem cells, mesenchymal stem cells, umbilical cord stem cells, and induced pluripotent stem cells have been employed in Neonatal Brain Injury stem cell therapy.

CONCLUSION

Stem-cell-based technology holds incredible promise for the future. These include the ability to recreate human tissues and potentially repair damaged organs (such as the brain, spinal cord, vertebral column, and eye), where we currently rely on supportive care to keep things from becoming worse. This possibility practically silences the harshest detractors of such technology, but the ethical challenges remain formidable. It's positive that, in addressing these issues, we'll be forced to think deeply about our profession's ethics and our interactions with patients, industry, and one another. Before these procedures are applied to individuals with neurological diseases, the experimental basis for stem-cell transplantation must be sound.

Correspondence to: Daniel Alvarez, Department of Cell Biology and Histology, University of the Basque Country, Leioa, Spain, E-mail: Daniel@alvarez.es

Received: 02-May-2022, Manuscript No. BDT-22-16957; **Editor assigned:** 04-May-2022, PreQC No. BDT-22-16957 (PQ); **Reviewed:** 18-May-2022, QC No. BDT-22-16957; **Revised:** 25-May-2022, Manuscript No. BDT-22-16957 (R); **Published:** 03-Jun-2022, DOI: 10.35248/2168-975X. 22.11.158.

Citation: Alvarez D (2022) Application of Stem Cell Therapy in Neonatal Brain Injury. Brain Disord Ther. 11:158.