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Perspective

Alternative Therapies for Brain Cancer using Stem Cells

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DESCRIPTION

The purpose of stem cells in the body is mainly to preserve homeostasis or the steady state of our body's functioning, by gradually renewing and replenishing cells such as those in the skin. Undifferentiated cells with the capacity to specialise into particular cell types are known as stem cells because they are essential for injury recovery and healing. All other cells in the body are created from these fundamental building elements. In light of this, stem cells have the capacity to develop into any type of cell including brain cells when given the right conditions. Numerous specialised cells can be found in both the human spinal cord and brain.

After first focusing on the damaged regions in spinal cord injuries, our neural cell replacement therapy seeks to restore dead or ill progenitor cells that are present in the neurogenic region. No matter the age of beginning, a head injury can cause a brain stem injury. A brain damage can result in a serious disability for the person who sustained a head trauma and may also cause a number of cognitive problems, such as forgetfulness or difficulty concentrating, as well as other motor-neurological conditions like ataxia, spinal muscular atrophy or Parkinson's disease. The term "brain stem injury" refers to any harm to the brain stem that is vascular in nature rather than the result of blunt force trauma that caused the intracranial serious injuries.

Throughout the body stem cells can differentiate into a wide range of different types of cells. Stem cells are proteins that aid in the creation of specific tissues. If stem cells can be implanted in the wounded location, the growth factors they create will help the baby's brain heal on its own. Recovery has been noted in numerous cases of traumatic brain damage treated with stem cells during the first few days or even hours following the injury often years after the initial accident. Cognitive functions, perception and irritation related moods and feelings all showed significant improvements. It has occasionally greatly enhanced when motor function is hindered.

After a severe brain injury, brain tissue injury may cause brain cells to degenerate. In order to further develop into neurons, glial cells and oligodendrocytes, neural stem cells must be identity stem cells. Due to host immune rejection protracted existence of the human cells transplanted into TBI models is challenging to achieve however NSCs transplanted and living for at least 5 months differentiated into mature neurons, astrocytes and oligodendrocytes; this suggests a potential clinical study for neurobiological recovery following brain injury. After a neuron dies it cannot be renewed or replaced. Additionally, function is lost because brain messages cannot pass through dead neurons.

Since neurons cannot recover on their own the bulk of treatments for brain injury focuses on promoting neuroplasticity. Neuroplasticity includes the ability of residual brain cells to reorganise. For nerve messages to quickly travel in the appropriate directions neurons are responsible. The brain's capacity for neuroplasticity or the ability to form new neural connections is similar to building a detour so that traffic can bypass the damaged road. Stem cell therapy on the other hand uses cells to restore a damaged connection.

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