Researchers at the University of South Florida have invented a method of treating traumatic brain injury using a novel combination of stem cells and drug therapy.

Traumatic brain injury (TBI) is a disruption in normal brain function that can be caused by a blow, bump or jolt to the head, or a penetrating head injury. TBI can affect any individual and is especially common in children, older adults, and military veterans. Following TBI, inflammation in the brain plays a key role in neurodegeneration and subsequent disabilities. Although Stem Cell Therapy (STC) is a promising therapeutic approach for TBI, its clinical use has been limited, which has left investigators to test whether SCT combined with drug therapy will be more effective against TBI.

USF scientists have discovered an effective method treating TBI using a combinatorial therapy comprised of an existing drug molecule together with human mesenchymal stem cells (hMSC). This combinatorial therapy resulted in a significant reduction in TBI induced neurodegeneration and CCL20 expression in the brain that was much greater than either treatment alone.

This combinatorial therapy has a more pronounced effect than existing TBI treatments and has the potential to alleviate many of the devastating effects of TBI and greatly improve patient quality of life.

ADVANTAGES:
- Treats TBI
- More effective than the available treatment options
- Combine’s existing drug molecule with hMSCs

Combined Treatment with the Drug Molecule and hMSCs Significantly Reduce Neuronal Degeneration and CCL20 Expression

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