

Stem cells help patch brain damage in stroke victims

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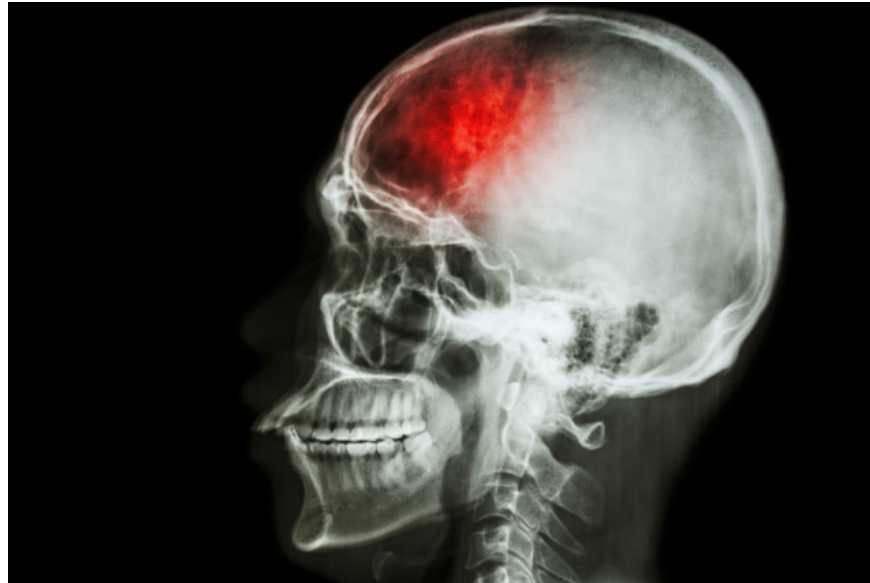
According to the CDC, stroke affects nearly 800,000 people each year in the US, and about 140,000 die, thus making it the fifth cause of death in the country.

Survivors need a long time to recover, and in severe cases, permanent brain damage may occur. Previous studies on stroke treatments may include anti-inflammatory drugs, peptides found in spider venom and catheters to remove blood clots.

A particularly promising new treatment involves stem cells. A few years ago, a London study used a set of CD34 + stem cells to stimulate the growth of new brain and blood vessels. Later, a Stanford University study restored the ability to move limbs of stroke victims after injecting stem cells into the brain.

This latest study was carried out by researchers from the University of Georgia's Center for Reproductive Biology and ArunA Biomedical, which also uses stem cells. Dubbed AB126, this treatment uses exosomes, a tiny tubular structure created by neural stem cells. Because these structures are smaller than cells, they can overcome certain barriers that cells cannot enter, carry and distribute multiple doses of renewable substances to where the body needs it most.

Steven Stice, a leading researcher on the study, said: *"This is really an interesting proof, because exosome provides a stealthy, invisible, invisible property even with the body's defense mechanisms. When packing it with therapeutic drugs, this treatment can really change cell progression and improve rehabilitation."*



The exosomes (red) are being taken by nerve cells (blue) of neurons (green) into the brains of stroke patients

The researchers tested AB126 on mice and found that treatment improved the recovery of control and memory in stroke mice. Next, the team compared the MR126 of mice treated with mice with the stroke, which was much more progressive than mice without therapy.

This new treatment reduces injury by about 35%, and halves the amount of brain tissue lost by stroke.

Scientists continue to study with a test on pigs, and get the same results. Encouraged by that, the team is currently preparing for human body research, scheduled to begin in 2019.

The study is published in Translational Stroke Research magazine.

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