

D. Steel 3<sup>rd</sup> June  
2016

# Stroke victims walk again after stem cell therapy rebuilds brain

By Sarah Knapton SCIENCE EDITOR

**STROKE** survivors who believed they would be paralysed or need a wheelchair for the rest of their lives are walking again after ground-breaking stem cell treatment.

Eighteen patients who let doctors drill a hole in their skull and inject stem cells into the damaged part of their brain have made a "remarkable" recovery. Doctors were amazed to find that the treatment even worked for patients whose strokes had occurred between six months and three years previously.

Previously, it was believed that the brain will not regenerate after six months. But the stem cell therapy essentially returns the adult brain to an infant brain so that it can rebuild itself.

Scientists at Stanford University School of Medicine in the US believe the therapy could also work for other conditions such as Alzheimer's, Parkinson's and motor neurone disease.

"The remarkable recovery we saw in many of these chronic stroke patients was quite surprising," said Prof Gary Steinberg, chairman of neurosurgery at Stanford.

"This wasn't just 'they couldn't move their thumb and now they can'. Patients who were in wheelchairs are walking now. Their ability to move around has recovered visibly. That's unprecedented." He added: "Clearly, the [brain] circuits can be resurrected by this treat-

ment and we are still investigating how they are being jump-started."

The stem cells used were taken from the bone marrow of two donors.

Scientists had previously believed stem cells could not integrate into the brain to become neurons. But it appears the cells secrete powerful chemicals for growth and regeneration which the brain can use to restore function.

All the patients involved in the trial had suffered ischemic strokes, where a clot prevents blood getting to the brain, leading to brain cell death.

A small hole was drilled in the skull above the damaged area so that SB623 stem cells could be injected at several spots around the edge of the injury. The patients, who had an average age of 61, only needed a local anaesthetic and were sent home the following day.

It was found that although the implanted stem cells did not survive very long in the brain, recovery continued after their demise. There have been no relapses since the injections, which were carried out up to two years ago.

Charities said the new therapy could help fill the "urgent need" for alternative treatments and "bring hope to many living with a disability".

Existing therapies must be administered within four and a half hours of a stroke to prevent further damage.

The Stanford team is now moving to a phase-2 larger trial. The research was reported in the journal *Stroke*.