



# Parkinson's disease hope

# Brain op a

# world first

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IN a world-first trial, stem cells were injected into the brain of a Victorian patient in a bid to develop a treatment for Parkinson's disease.

Royal Melbourne Hospital neuroscientists transplanted millions of cells, which were frozen and flown in from the US, into the man's brain.

Capable of transforming into any cell in the body, it is hoped they will replace or boost levels of the neurotransmitter dopamine, a lack of which causes tremors, rigidity and slowness in patients.

The therapy, which pushes the frontiers of science and surgery, showed great promise in pre-clinical trials, paving the way for human trials.

Months of planning, involving designing the surgery, gaining regulatory approval and importing a machine, was required for the operation.

Using a three-dimensional model of their patient's brain, trial leader and neurologist Andrew Evans and neurosurgeon

Girish Nair spent weeks doing "dummy runs" devising a way to enter the brain via two 1.5cm holes in the skull and reach all 14 injection sites.

The risks included paralysis, stroke or death, as well as not knowing how the stem cells would behave. Inject them too slowly and they could become stuck, or, worse still, the cells could grow rapidly, turning into a tumour.

"The idea with cellular replacement therapy is to be able to implant cells that will differentiate or change from stem cells into cells that either produce dopamine or provide other forms of support to remaining neurons," Mr Evans said.

This treatment is unique because it uses neural stem cells, derived from unfertilised eggs manufactured in a lab by the International Stem Cell Corporation in the US.

"Eventually we hope that we can use our therapy to cure Parkinson's disease," its chief scientific officer Russel Kern said.

Eleven more patients will have the surgery with final results known in two years.