

Japan carries out first iPS stem cell implant surgery (Update)

September 12 2014

Japanese researchers Friday conducted the world's first surgery to implant "iPS" stem cells in a human body in a major boost to regenerative medicine, two institutions involved said.

A female patient in her 70s with age-related macular degeneration (AMD), a common medical condition that can lead to blindness in older people, had a sheet of retina cells that had been created from iPS cells implanted.

"It is the first time in the world that iPS cells have been transplanted into a human body," a spokeswoman for Riken, one of the research institutions, told AFP.

The research team used induced Pluripotent Stem (iPS) cells—which have the potential to develop into any cell in the body—that had originally come from the skin of the patient.

Until the discovery of iPS several years ago, the only way to obtain stem cells was to harvest them from human embryos.

"We feel very much relieved," ophthalmologist Masayo Takahashi, the leader of the project at Riken, told a news conference after the surgery in Kobe.

"We want to take it as a big step forward. But we must go on and on from here."

In a statement, the institution said that "no serious adverse phenomena such as excessive bleeding occurred" during the two-hour procedure.

The surgery is still at an experimental stage, but if it is successful, doctors hope it will stop the deterioration in vision that comes with AMD.

The patient—one of six expected to take part in the trial—will be monitored over the next four years to determine how well the implants have performed, whether the body has accepted them and if they have become cancerous.

AMD, a condition that is incurable at present, affects mostly middle-aged and older people and can lead to blindness. It afflicts around 700,000 people in Japan alone.

The study was being carried out by researchers from government-backed research institution Riken and the Institute of Biomedical Research and Innovation Hospital.

Stem cell research is a pioneering field that has excited many in the scientific community with the potential they believe it offers.

Stem cells are infant cells that can develop into any part of the body.

Harvesting from human embryos is controversial because it requires the destruction of the embryo, a process to which religious conservatives, among others, object.

Groundbreaking work done in 2006 by Shinya Yamanaka at Kyoto University, a Nobel Laureate in medicine last year, succeeded in generating stem cells from adult skin tissue.

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Citation: Japan carries out first iPS stem cell implant surgery (Update) (2014, September 12)
retrieved 10 April 2024 from

<https://medicalxpress.com/news/2014-09-japan-ips-stem-cell-retina.html>

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