

New nerves grown from fat cells

New nerves grown from stem cells taken from a patient's fat could be available by 2011, researchers have said.

They could potentially be used to repair peripheral nerves left severed by surgery or accidents.

Manchester University scientists plan to place the new nerve tissue inside a biodegradable plastic tube, which can be used to rejoin the two broken ends.

The findings of their study on rats, in *Experimental Neurology*, could help hundreds of people a year, they say.

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Professor Giorgio Terenghi
UK Centre for Tissue Regeneration

At the moment, only limited techniques are available to help repair nerves outside the spinal cord, even though they have a limited capacity to regrow.

Other nerves from elsewhere in the patient are often used, which does not restore perfect function and can cause further damage.

The Manchester technique uses stem cells - immature cells which the body naturally uses to create different tissue types.

So far, the team has extracted stem cells from fat tissue taken from rats, and managed to coax the cells into becoming neurons - nerve cells - in the laboratory.

Their next step is to repeat this in stem cells from human fat, and then create a full replacement nerve, using a biodegradable "sheath" to surround it.

This nerve-filled tube could then be implanted to re-join the ends of a severed nerve virtually anywhere in the body, they claim.

Large tumour

Dr Paul Kingham, who led the research, said: "The differentiated stem cells have great potential for future clinical use, initially for treatment of patients with traumatic injuries of nerves in the arms and legs."

He said that the treatment might be available in four or five years, as a study to test the biodegradable tube is already under way.

Dr Kingham said it could also work in cases where surgeons have had to remove a large tumour close by a nerve, damaging or cutting the nerve in the process.

Professor Giorgio Terenghi, the director of the university's Centre for Tissue Regeneration, said:

"This new research is a very exciting development that will improve the lives of many different types of patients - and therefore many, many people.

"The frequency of nerve injury is one in every 1,000 of the population - or 50,000 cases in the UK every year.

"The patients will not be able to tell that they had ever 'lost' [the feeling to] their limb, and will be able to carry on exactly as they did before."

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