

Adult Stem Cell Treatment for Spinal Cord Injury Shows Promise

BY Liz Townsend

A study published in the *Journal of Spinal Cord Medicine (JSCM)* shows that a treatment that transplants patients' own nasal stem cells to the site of a spinal cord injury (SCI) can bring paralyzed patients some renewal of sensation and motor control.

"This pilot clinical study shows that autografts of olfactory mucosa are fairly safe and feasible and may possibly promote functional recovery in chronic, severe SCI in humans," primary study author Dr. Carlos Lima wrote in the journal. "Overall, patients exhibited a modest amount of improvement in function that is not normally observed in complete SCIs."

Despite the encouraging results of treatment using stem cells obtained without harming the donor, the major media ignored Lima's study. The media continue to lavish attention on embryonic stem cell research, which has been used in zero clinical trials and has not helped any patients.

In contrast, Lima has done about 80 of these operations at a hospital in Portugal, according to Copley News Service. One patient, who was not included in the study, spoke at a Capitol Hill press conference June 20 in support of legislation to increase funding for alternatives to embryonic stem cell research.

Jacki Rabon, 19, from Waverly, Illinois, had been paralyzed since a car accident in 2003, Copley News Service reported. She traveled to Portugal for the olfactory mucosa operation last October, and said that she now has feeling in her hips and can take steps using a walker and braces.

"[The surgery] allowed me to walk again and go back to my normal life," said Rabon, according to Copley News Service.

Rabon appeared at the press conference with pro-life Sen. Sam Brownback (R-Ks.), who called for more adult stem cell treatments to occur in the United States. "Many of the patients had to go overseas," Brownback said. "They shouldn't have to do that."

Lima's study included seven patients who received the olfactory mucosa transplants between July 2001 and March 2003. The olfactory mucosa is a "continuously regenerating system" in the nose that contains "stem-like progenitor cells," Lima wrote. These cells "divide rapidly and can develop into supporting cells or mature neurons."

Rather than removing the cells from the nasal tissue and developing them in culture, Lima transplanted the tissue itself. Once the nasal tissue was inserted into lesions in the patients' damaged spinal cords, the stem cells regenerated, filling the lesion sites and giving the patients increased sensation.

The patients were evaluated before surgery and at 6, 12, and 18 months after using criteria developed by the American Spinal Injury Association. Before the stem cells were transplanted, all seven patients were determined to be Class A, which means they were "chronically paraplegic or tetraplegic" with little or no motor function, Lima wrote.

Two of the patients improved to Class C after the operation, meaning they had marked improvement in motor function. All patients except one showed both motor and sensory improvements, according to the JSCM report.

All patients showed some increases in movement of their hip flexors, Lima wrote, and some were able to move their arms and feel sensation in their legs or abdomens. The same two patients who improved to Class C also regained sensation in their bladders, and were able to remove their catheters. One of these, a 32-year-old woman who had been a tetraplegic for six and a half years, also regained bowel control.

This small study is just the first step in developing an effective adult stem cell treatment for spinal cord injury. "Long-term patient monitoring is necessary to rule out any delayed side effects and assess any further improvements," Lima wrote. "Based on the encouraging findings in this study and lack of serious adverse effects, further investigational clinical trials seem to be warranted."