Doctor uses stem cells to help heal back surgery patients

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KENS 5 Eyewitness News

A new technique for back surgery uses stem cells to help speed healing and create strong bones. These aren't stem cells from embryos that have stirred up so much controversy, but rather, stem cells from the patient's own body.

Dr. Robert Johnson, an orthopedic surgeon at San Antonio's Methodist Hospital, is one of the first spine surgeons in Texas to use this new technique in the operating room.

For one 66-year-old patient, disc degeneration and arthritis have led to a narrowing of the spinal canal, which pushes on nerves and causes debilitating back and leg pain.

Johnson will fuse three vertebrae in the man's back, a surgery that will take several hours. Removing the stem cells to be used in the healing process only takes a matter of minutes.

Johnson withdraws bone marrow through a needle inserted into the patient's pelvis, taking out two large syringes full of the liquid. Then a technician loads the fluid into a centrifuge to spin out the stem cells. The stem cells are soaked into synthetic collagen pads — essentially a sponge — that will aid the bone graft.

"That little rectangle containing the stem cells will be placed into the patient's body, along with the fusion, so the two of them kind of get to know each other, and hopefully start making bone," Johnson said.

Stem cells have the potential to become any kind of cell — blood, nerve, or in this case, bone. The idea is to jump start the body into growing the bone graft.

"By introducing them into the area of the fusion, we're hoping that they will choose a career path of becoming a bone cell and creating bone, and sort of solidifying the fusion," Johnson said.

Johnson calls the technique simple and cost effective.

"It's using the body's own mechanisms to augment the fusion, which is nice," he said. "It's the patient's own blood, so we're not transfusing from another patient.

The fusion, which is held in place by screws and plates, will immobilize the lower portion of the spine and ease the patient's chronic pain.

Johnson has used this technique on about 30 people over the last three months. He is hopeful that the stem cells will provide a more reliable, consistent fusion, and spare patients future surgeries.

ADULT STEM CELLS BEING USED IN SPINAL FUSION
IN SAN ANTONIO ONLY AT METHODIST HOSPITAL

Local Surgeon Among the First in Texas to Use New Technology
(Should I say in the U.S.?)

For the first time stem cells are being used to aid in spinal fusion. This new technology is now available in San Antonio only at Methodist Hospital. The technology is important because stem cells have the ability to divide and to differentiate into other cell types resulting in a more reliable fusion for the patient. The stem cells are from the patient, and none of the controversial embryonic stem cells are involved.

Dr. Robert Johnson, a San Antonio orthopedic spinal surgeon was one of the first physicians in Texas (the U.S.? ) to use the new technology. He has been using it to treat patients for the last two months. The technology is especially important in healing bones that are difficult to heal, such as the shin bone. Though the technology is new to the U.S., research conducted on stem cell fusion in France has produced promising results.

The World Research Group considers disorders of the spine as one of the largest public health problems in the U.S. As the population ages, the incidence will continue to increase.

THE PROCEDURE
Lumbar fusion surgery is performed to relieve pain, numbness, tingling and weakness in the back. It also can restore nerve function and stop or prevent abnormal motion in the spine. The procedure involves fusing the vertebrae together.

During the procedure, the surgeon takes a bone graft or donor bone to use in the fusion. The graft is stabilized in the spine with plates and screws. Stem cells are located in the bone marrow. Using a newly developed needle, bone marrow is extracted from the pelvic or hip areas of the patient. Then the bone marrow is placed into a centrifuge that separates the stem cells and concentrates them from five to seven times their normal strength. Approximately eight to ten cc of liquid stem cells are produced. The stem cells
are packed around the bone graft and the spinal column to promote fusion. Surgeons expect to see the results of the procedure in six to twelve months.

Two Austin companies developed the technology. Spinesmith developed the special needle and other equipment for the harvesting of the stem cells from the patient, and Surgical Outcomes designed the centrifuge system for separating and concentrating the stem cells.

**STORY IDEA**
Dr. Johnson performs the procedure at Methodist Hospital. With advance notice, media may videotape or photograph Dr. Johnson performing the procedure. Media will be able to obtain sound bites during the procedure or can make arrangements to interview Dr. Johnson in between procedures. The procedure usually takes four to five hours. The harvesting and concentrating of the stem cells takes about five minutes. With advance notice, media may join the procedure in progress.

If you are interested in doing a story, please phone Shirley Wills at 822-2378 or 365-4488 (cell) or JoAnn King, 575-0171 or 325-3294 (cell). For media assistance during the weekend, please phone Methodist Hospital, 575-4000, and ask for the public relations representative on call.

For additional story ideas, visit our Web site at www.SAHealth.com.