

Safe system developed for neural transplantation

Treating Parkinson's disease through fetal cell transplantation has been investigated by neurosurgeons for the past 2 decades. Despite promising results, however, trauma from the procedure and an inability to maximize the number of cells deposited have prevented the procedure from becoming routine. Now a Halifax neurosurgeon has invented a simple, reliable and safe system for performing neural transplantation in the brain, which may overcome these obstacles (*J Neurosurg* 2000;92:493-9).

"Twenty-four hours after patients were operated on using the new system, there was no evidence of hemorrhage or tissue damage, which are potential side effects associated with neural transplantation," says Dr. Ivar Mendez, head of the Division of Neurosurgery at the Queen Elizabeth II Health Sciences Centre. The new system, which was developed in Nova Scotia with the help of

the Biomedical Engineering Departments at the QE II Hospital and the Izaak Walton Killam-Grace Health Centre, increases the number of graft deposits of healthy cells that can be made with each injection, while decreasing trauma related to the procedure. The system consists of a unique piece of equipment called a "transplantation cannula" and a microinjector device. The entire system fits on a Hamilton syringe.

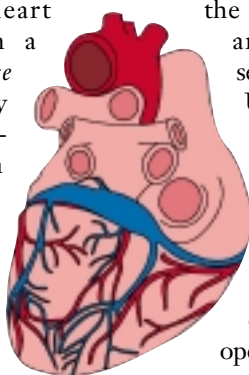
The microinjector system was initially tested in the laboratory with positive results. Now it has been used on 8 patients with Parkinson's disease, who underwent a total of 16 transplantations involving 64 trajectories at the QE II.

Not only patients with Parkinson's disease can benefit from the new system, says Dr. Mendez. "This device has the potential to be useful in cell therapy delivery for other neurological conditions." — *Donalee Moulton*, Halifax

Stunning research pinpoints a cause of sudden heart failure

Troponin I (TnI), a small protein that helps the heart muscle to contract, has been found to trigger cardiac stunning, a form of heart failure that occurs after patients undergo open-heart surgery or are placed on a heart-lung machine (*Science* 2000;287:488-91). This study marks the first time that scientists have shown that a problem at molecular level can lead to any type of heart failure.

"What is so remarkable about this study is that it shows this protein — and this protein alone — if it is 'clipped' is sufficient to cause stunning," says coauthor Dr. Jennifer Van Eyk, an assistant professor of physiology at Queen's University, Kingston. "We didn't know that before."



Earlier research had revealed that patients with weakened hearts had a shorter form of TnI than normal. To understand the connection between the shorter, or damaged, TnI and cardiac stunning, researchers in Canada and the US cloned the abnormal genes associated with the protein and injected them into mice. Approximately 20% of these mice then went on to develop the shortened form of TnI. They also developed enlarged hearts, a classic symptom of a heart muscle that has been weakened.

"What we've done is produce, artificially, what normally can happen in the heart muscle when the blood supply

Briefly . . .

Clotting defects raise risk of venous thrombosis from the Pill

Venous thrombosis develops more often and sooner in women taking oral contraceptives who have inherited clotting defects than in women without these defects, according to a study that identifies a major risk factor for women taking the Pill (*Arch Intern Med* 2000;160:49-52). The study confirms findings from previous studies showing that deep venous thrombosis occurs more often during the first year — and especially the first 6 months — of oral contraceptive use. It also shows that women with inherited clotting defects — protein C deficiency, protein S deficiency, antithrombin deficiency, factor V Leiden mutation or prothrombin 20210 A mutation — have a risk of deep venous thrombosis 11 times higher than other women in their first year on the Pill, and 19 times higher in the first 6 months. While the authors say it is "uncertain" whether women should be screened for genetic clotting disorders before starting oral contraceptives, they recommend taking a careful family history and providing patients with information about the signs and symptoms of venous thrombosis. An occurrence of venous thrombosis in a woman taking oral contraceptives may mean that she has a clotting disorder.

gets interrupted," notes Dr. Anne Murphy, a cardiologist at the Johns Hopkins Children's Center and team leader of the research project. "We believe this may have importance for garden variety heart failure. [Patients] may have some of this protein broken down. We don't know that for sure yet, but there are good reasons to suggest this possibility," she adds. — *Donalee Moulton*, Halifax