April 15,2011

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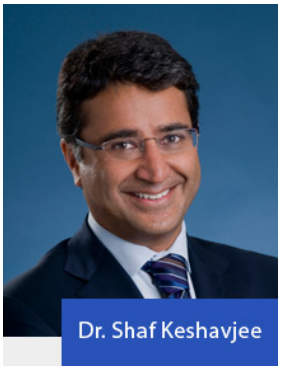
SPORT FEST WINDSOR NEWS

High-risk donor lungs can now be safely used for transplant due to the Toronto XVIVO Lung Perfusion System



For the first time, scientists at Toronto General Hospital, University Health Network have shown in a clinical trial that the Toronto XVIVO Lung Perfusion System can safely and effectively treat, re-assess and improve the function of high-risk donor lungs so that they can be successfully transplanted into patients. The use of this technique could significantly expand the donor organ pool and improve patient outcomes after transplantation.

In their pioneering work, a team of researchers led by **Dr. Shaf Keshavjee** , Senior Scientist at the McEwen Centre for Regenerative Medicine, University Health Network (UHN), Director of the Toronto Lung Transplant Program, Toronto General Hospital, UHN and Surgeon-in-Chief, UHN showed, in their latest research on this world-first technique, that using high-risk donor lungs which were repaired and re-tested in the Toronto XVIVO Lung Perfusion System before transplantation led to results that were similar to those using conventional donor lungs.

Their study, "Normothermic Ex vivo Lung Perfusion in Clinical Lung Transplantation" is published in the April 14, 2011 edition of the *New England Journal of Medicine*. Drs. Keshavjee and Marcelo Cypel are presenting the long-term outcomes of this study at the International Society for Heart and Lung Transplant in San Diego on April 14 at 9:00am (Pacific Time).

"This heralds a new era in transplantation where we can predict how well the organ functions before using it, we can help the organ heal itself, and ultimately, we can use the Toronto XVIVO as a platform to engineer 'super organs' for transplantation," says Dr. Keshavjee, who is also Director, Latner Thoracic Surgery Research Laboratories and Professor of Thoracic Surgery at the University of Toronto.

Typically, only about 15% of donor lungs world-wide are acceptable for transplantation since lungs are susceptible to injuries during the brain-death process or from intensive care related lung complications. Moreover, organ retrieval often occurs before the lungs can recover from their injuries.

Unlike current cooling preservation fluids which inhibit repair processes of the donor lungs, the Toronto XVIVO Lung Perfusion System preserves lungs at normal body temperature, with the lungs kept outside the body in a protective dome. The system continuously pumps a bloodless solution of oxygen, proteins and nutrients into injured donor lungs, mimicking normal physiological conditions. The lungs are treated with anti-inflammatory medications and antibiotics. This makes it possible for the injured cells to begin repairing themselves, and sets the stage for more sophisticated repair techniques to be applied to donor lungs.

"For the first time, we can assess more precisely the function of an organ before using it. **The most important finding of this study was that even donor lungs previously thought to be unusable can now be used for transplantation with excellent outcomes, if they perform with acceptable function on the XVIVO system.**

This will give us more lungs with more predictable, safer outcomes after transplantation, and shorter periods of mechanical ventilation and intensive care unit stays for patients," says Dr. Marcelo Cypel, first author of the study, and a surgical fellow in transplant and thoracic surgery who helped to develop the Toronto XVIVO System.

After the development of the Toronto XVIVO System, lung transplant centers in the United Kingdom, Austria, and Spain have started to successfully implement its use, demonstrating that the procedure is reproducible. **Drs. Keshavjee and Cypel estimate that the Toronto XVIVO Lung Perfusion System could potentially quadruple the number of lung transplants that are performed each year.**

What is Living Organ Donation?

Unfortunately, there are currently not enough organs donated by deceased donors to meet all of the needs of patients awaiting an organ transplant. Therefore, over the last few years, transplant surgeons and other members of transplant teams throughout the country have developed new techniques and procedures to save more patients' lives through living donor transplants. It is now possible for a living person to donate a kidney, a portion or their liver, a portion of a lung and in some rare instances a portion of the pancreas.