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First 'breathing lung' transplant on East Coast using OCS lung

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UPMC surgeons have performed a "breathing lung" transplant using a portable machine that provides a constant supply of blood and nutrients to the donor organs, which doctors say has the potential to keep them healthier and viable for longer than ever before.

The double-lung transplant was performed March 4 at UPMC Presbyterian, using the Organ Care System, also known as the OCS lung, by TransMedics Inc. This is the first time the device has been used on the East Coast. The patient, a 53-year-old man from Moundsville, W.Va., had suffered from pulmonary fibrosis and pulmonary hypertension. He was in good condition Wednesday.

Traditionally, donor lungs are cooled and put on ice with no blood circulation, a process that essentially puts them to sleep. Once removed from a blood supply, though, the lungs can deteriorate rapidly, which can lead to complications for the recipient or, in some cases, the determination that the organs are no longer viable. Using the OCS device, the lungs are immediately placed in the machine after donation, where they are kept at body temperature and functioning while in transit to the recipient.

"Unfortunately, many people waiting for an organ transplant die because usable donor organs aren't available. Using this method, we believe we can help more people and save lives," said Christian Bermudez, M.D., UPMC's chief of cardiothoracic transplantation who participated in the transplant surgery along with surgeon Jonathan D'Cunha, M.D.

Bermudez is principal investigator of a study involving the OCS lung.

UPMC surgeons hope to enroll 10 patients in the clinical trial, which will randomize five participants to get the OCS device and five to be treated using the traditional method of care. The goal is to assess whether perfusing the lungs in the machine will decrease the chances of early dysfunction of the transplanted organ, thus resulting in better long-term function for the recipient.

"This is an exciting technology breakthrough that has the potential to increase the organ donor pool and improve outcomes for those receiving these specially perfused lungs," said James Luketich, M.D., chair of the Department of Cardiothoracic Surgery.

The OCS lung machine resembles a small cart on wheels. It can monitor the organ's arterial pressure, gas exchange ratio, vascular resistance and other data through embedded sensors so doctors can get an immediate snapshot of the organ's viability.

Provided by University of Pittsburgh Schools of the Health Sciences

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