The Dual Lumen Cannula: UCLA's Lifesaving Heart-Lung Technology

University of California, Los Angeles

After contracting COVID-19, a 27-year-old patient needed a lung transplant – his lungs were failing. The patient was transferred to the University of California, Los Angeles (UCLA) to receive treatment using the Dual Lumen Cannula®. Four months later, the patient's condition improved significantly.

The Dual Lumen Cannula increases oxygen delivery for patients with lung failure while providing heart support for patients with right ventricle failure, specifically during extracorporeal membrane oxygenation (ECMO) procedures.

ECMO is a machine that takes over the functions of the heart and lungs, providing life support when those organs are not functioning properly. During ECMO a patient's blood is pumped outside of their body to a machine; the machine removes carbon dioxide from the blood and returns the now oxygen-filled blood to the body. Removing and returning the blood is achieved by inserting tubes through the body to the heart, yet the Dual Lumen Cannula requires only one insertion site.

The Dual Lumen Cannula is inserted through the right internal jugular vein of the body, and the patient's blood is drained through the heart's lumen of the outer catheter and returned through the inner catheter. With only one insertion site from the Dual Lumen Cannula, the ECMO procedure becomes less invasive. The single insertion site also

increases the stability of the placement and involves a better fluid flow design, resulting in improved patient outcomes.

Dr. Abbas Ardehali, a cardiothoracic surgeon and Director of the UCLA Heart-Lung transplant program, created the Dual Lumen Cannula. UCLA's Technology Development Group (TDG) managed the patenting and licensing of the Dual Lumen Cannula and negotiated the technology's commercial license, granting Spectrum Medical an exclusive license to the device. TDG also worked with UCLA's patent counsel to ensure that United States patent coverage remained effective after receiving FDA approval.

Since receiving FDA approval in November 2021, the Dual Lumen Cannula has become commercially available. The Dual Lumen Cannula is no longer exclusive to Dr. Ardehali and his patients, having the potential to save patients' lives and improve ECMO treatment beyond UCLA.

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