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Ex vivo reconditioning and reevaluation of initially rejected donor lungs for clinical lung transplantation

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A major problem in clinical lung transplantation is the shortage of donor lungs. Only about 20% of donor lungs are accepted for transplantation. We have recently reported the results of the first six double lung transplantations performed with donor lungs reconditioned *ex vivo* that had been deemed unsuitable for transplantation by the Scandiatransplant, Eurotransplant, and UK Transplant organizations because the arterial oxygen pressure was less than 40 kPa. The three-month survival of patients undergoing transplant with these lungs was 100%. One patient died due to sepsis after 95 days, and one due to rejection after 9 months. Four recipients are still alive and well 24 months after transplantation, with no signs of bronchiolitis obliterans syndrome.

The donor lungs were reconditioned *ex vivo* in an extracorporeal membrane oxygenation circuit using STEEN Solution™ mixed with erythrocytes, to dehydrate edematous lung tissue. Functional evaluation was performed with deoxygenated perfusate at different inspired fractions of oxygen. The arterial oxygen pressure was significantly improved in this model.

This *ex vivo* evaluation model is thus a valuable addition to the armamentarium in increasing the number of acceptable lungs in a donor population with inferior arterial oxygen pressure values, thereby increasing the lung donor pool for transplantation.

The *ex vivo* evaluation model has also shown to be of great value in evaluate donor lungs from donor lungs from uncontrolled none-heart beating donors also called donation after cardiac death Maastricht classification II.

Biography

Sandra Lindstedt has been a consultant in cardiothoracic surgery since 2010 and is currently working as a cardiothoracic surgeon at Lund University Hospital. Sandra Lindstedt completed her PhD at the age of 34 years from the University of Lund of Sweden. She has published more than 40 papers in reputed journals and serving as an editorial board member of European Journal of Cardiovascular Medicine. Sandra Lindstedt received an honorable research grant from the Swedish government 2011 intended for lung transplantation. Sandra Lindstedt received Lund University´s innovation price 2011 for the cardiac protection disc.

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