Experience from the Thoracic Surgery Residents Association traveling fellowship: Adult and pediatric lung transplantation in Toronto

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Shaf Keshavjee, MD, MSc (left), and Taufiek Konrad Rajab, MD, BChir (right).

Central Message

Dr Rajab describes his experience from the TSRA Traveling Fellowship at Toronto General Hospital and the Hospital for Sick Children (SickKids).

Innovations in specific areas of cardiothoracic surgery are spearheaded at a small number of dispersed centers of excellence. The Thoracic Surgery Residents Association (TSRA) and The Society of Thoracic Surgeons have recognized the importance of exposing residents to such innovations by launching the TSRA and Society of Thoracic Surgeons Traveling Fellowship. This fellowship allowed me (T.K.R.) to visit Drs Keshavjee and Van Arsdell in Toronto to learn about their program in adult and pediatric lung transplantation.

The world's first successful adult and pediatric lung transplants were performed in Toronto in 1983 and 1987, respectively.¹ Ever since, Toronto has been an international leader in this field. Most recently, Dr Keshavjee's group² pioneered ex vivo lung perfusion to evaluate and optimize marginal donor lungs before implantation. Moreover, the

program has one of the highest levels of clinical activity in the world (Figure 1). As a result, I had a busy time in Toronto.

FIGURE 1. Activity of the Toronto Lung Transplant Program in 2016. LTx, Lung transplants; EVLP, ex vivo lung perfusion; DCD, donation after cardiac death.

FIGURE 2. Ex vivo lung perfusion to evaluate and optimize a marginal donor lung with 143 minutes of warm ischemic time after donation after cardiac death. S.K. subsequently transplanted this lung into a patient supported by extracorporeal membrane oxygenation for pulmonary allograft rejection.

I arrived on March 26th and spent the next week attached to the Lung Transplant Program. During this time I was able to attend several procurement runs, observe clinical use of the Toronto ex vivo lung perfusion apparatus for 2 lungs that were marginal as a result of prolonged warm ischemic times after donation after cardiac death (Figure 2), and witness the implantation of one of these lungs. I also attended postoperative care rounds on recipients at Toronto General Hospital and the Hospital for Sick Children (SickKids). Finally, I was able to spend time in the Latner Thoracic Surgery Research Laboratories, where I learned about the program's translational research efforts involving rat and mouse lung transplantation, as well as rat and pig ex vivo lung perfusion experiments.

I am very grateful to the TSRA and The Society of Thoracic Surgeons for their generous traveling fellowship and this unique opportunity to explore my interest in adult and pediatric lung transplantation. In conclusion, I would like to point out that this award should first and foremost be considered recognition of the excellence of the Lung Transplant Program in Toronto.

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