

International Symposium of Pediatric Heart and Lung Transplantation

Vice-chair Lecture

Living lobar lung transplantation

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[ISPHLT-VC] Living lobar lung transplantation

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To deal with the brain-dead donor shortage, living-donor lobar lung transplantation (LDLLT) was first developed as an alternative modality for very sick patients who would not survive a waiting time for cadaveric lung transplantation (CLT). For the past several years, most of the reports on LDLLT have been from Japan, where the average waiting time for a cadaveric lung is exceeding 800 days.

Recipient candidates for LDLLT should be less than 65 years old and must meet the criteria for conventional cadaveric lung transplantation. Our policy has been to limit LDLLT to severely ill patients with rapidly progressive lung disease who would not survive the long waiting time for cadaveric lungs. We have accepted only immediate family members (relatives within the third degree or a spouse) for living-donors. It is very important to confirm that potential donors are competent, willing to donate without psychologic pressure from the others.

Since only two lobes are implanted, LDLLT was initially indicated for children and small adults such as cystic fibrosis patients. However, we have accepted various lung diseases including restrictive, obstructive, infectious and vascular lung diseases for LDLLT candidate. Regarding size matching issue, functional size matching by measuring donor pulmonary function and anatomical size matching by 3D-CT volumetry are very useful.

In cases of oversize mismatch, single lobe transplant or downsizing transplant was performed. In cases of undersize mismatch, native upper lobe sparing transplant or right-left inverted transplant was performed.

As of April 2021, the author has performed 152 LDLLTs (47 at Okayama University and 105 at Kyoto University). The ages ranged from 3 to 64 years. Forty-three patients were children. The 5, 10 and 15-year survivals were 83%, 75% and 68%, respectively. For pediatric patients, they were 87%, 81% and 81%, respectively. All donors returned to their previous lifestyles without restriction.

LDLLT is a viable option for very ill pediatric and adult patients who would not survive a long waiting time for cadaveric lungs.