



## On Improving Donor Lung Usage Rate for Transplantation

The number of lung transplantation operation is growing rapidly in Korea according to the Korean Network for Organ Sharing (KONOS) reports, whereas only 18 cases were performed in 2010, there were 89 cases in 2016 (1). However, the shortage of donor lungs remains as a serious problem. When we reviewed the data from Asan Medical Center, a total of 29 lung transplantations have been performed since 2014, while 40 patients died or gave up surgery because the patients' physical status greatly deteriorated while waiting. Hence, it is important to assess the current status of donor lung shortage and to discuss ways to improve it.

In the current issue, Yeo et al. (2) reported the current status of lung donation in Korea. From 2012 to 2016, the lungs from 168 donors (12.9%) were used for lung transplantation out of a total of 1,304 donors. The donor use rate of 12.9% is significantly lower compared to 22% in the United States, 32% in Europe, and 41% in Australia (3). In order to overcome the problem of donor shortage, the authors asserted that public education and campaign for encouraging organ-donation is required, and that systemic management of donors is necessary to improve the conditions of marginal/unusable lungs. In this regard, it is particularly worrisome to receive news that post-donation care for donors — especially brain-dead donors — is lacking, and that the number of people withdrawing from their organ donation pledge is increasing (4). Therefore, before encouraging organ donation to the public, it is of paramount importance to establish adequate form of courtesy and donation process for the donors.

We would like to further discuss the possible ways for increasing the organ usage rate. First, proper management in the intensive care unit is tremendously important. It should be noted that 127 (9.7%) lungs from consented donors were not used because the final recipients were not matched for surgery as shown in this paper. Because the lung allocation score is based on the urgency of recipients and the lung donation is limited, more than half of the recipients are in status zero in Korea, which means that the patients have severely compromised physical status and are under extracorporeal membrane oxygenator (ECMO) or ventilator support. The recipients' condition should remain operable by proper intensive care unit (ICU) management until appropriate lungs are available, which is also needed for obtaining desirable postoperative results. Second, in order to significantly expand the pool of donated organs, new technologies

such as organ procurement from circulatory arrest donors or ex vivo lung perfusion should continue to be developed and applied to clinical practice (5). Third, living donor lobar lung transplantation (LDLLT), in which two lower lobes from two healthy donors are implanted to a recipient, should be legally permitted and widely used in clinical practice. LDLLT is expected to be especially practical for children or adolescent patients with small body sizes, which prevent them from receiving the matched donor lungs in time. Finally, we would like to point out the survival rate of lung transplantation in Korea. Although the proportion of recipients using ECMO or ventilator is very high in Korea, the survival rates are at disappointing levels of 60% at 1 year and 48% at 5 years (1). We have previously reported that with proper ICU management and appropriate selection of donor and recipient, the survival rates can be improved to approximately 80% at 1 year and 67% at 5 years (6). It is our obligation to obtain the best surgical results when the availability of organs are seriously limited.

### DISCLOSURE

The authors have no potential conflicts of interest to disclose.

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### REFERENCES

1. Korean Network For Organ Sharing. 2016 KONOS annual report [Internet]. Available at <http://konos.go.kr/konosis/common/bizlogic.jsp> [accessed on 25 October 2017].
2. Yeo HJ, Yoon SH, Lee SE, Jeon D, Kim YS, Cho WH, Kim DH. Current status and future of lung donation in Korea. *J Korean Med Sci* 2017; 32: 1953-8.
3. Kotecha S, Hobson J, Fuller J, Paul E, Levvey BJ, Whitford H, Paraskeva M, McGiffin D, Snell GI, Westall GP. Continued successful evolution of extended criteria donor lungs for transplantation. *Ann Thorac Surg* 2017; 104: 1702-9.
4. Yoo SY. Available at [http://news.chosun.com/site/data/html\\_dir/2017/10/20/2017102002239.html](http://news.chosun.com/site/data/html_dir/2017/10/20/2017102002239.html) [accessed on 25 October 2017].
5. Cypel M, Yeung JC, Liu M, Anraku M, Chen F, Karolak W, Sato M, Laratta J, Azad S, Madonik M, et al. Normothermic ex vivo lung perfusion in clinical

cal lung transplantation. *N Engl J Med* 2011; 364: 1431-40.

6. Jeong YH, Choi S, Park S, Kim DK. Clinical outcomes of lung transplantation: experience at Asan Medical Center. *Korean J Thorac Cardiovasc Surg* Forthcoming 2017.

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