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New Era of Lung Transplantation in China

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There are over 4000 lung transplantation per year according to ISHLT data. However, many Asian countries' data was not included, such as in China. In 1978, Dr. Xin Yuling performed the first lung transplantation in China. From 1995, Dr. Chen Yuping, Zhang Guoliang and Zhao Fengrui finished several cases, and became the pioneer on the establishment of lung transplantation in China. In 1998, I met Dr. Cooper in China and decide to go to Toronto General Hospital, in 2001. In 2002, I came back to China and established the lung transplantation program and animal experiment lab, in my working hospital, Wuxi people's hospital. From 2015 to 2020, case volume of lung transplantation in China has increased significantly. There are two top centers in China, Wuxi people's hospital in Wuxi city, Jiangsu Province and China-Japan Friendship hospital in Beijing, performing over 100 cases every year. Other center volumes, are still arising. Now, in China, we have four leading centers with high case volume and more constructing centers. They are preparing to be qualified to perform lung transplantation. Our aim is to establish a qualified lung transplantation center in each province. Patients will not need to travel for a long distance to get lung transplantation. For indication of lung transplantation, idiopathic pulmonary fibrosis, COPD, like in western countries, are the top two indications. However, we have large population of pneumoconiosis patients who need lung transplantation, which is different from western world. We have established China lung transplantation league from September 2018. The league promoted collaboration on donated organ transportation, patients evaluation and balanced development of medical technology. In China, we have over 5000 donors a year and utilization rate of donor lungs is still lower than that in other countries and other organs' usage in China. We have figured out problems, including donor management, transportation route and recipients' status, contributed to the low utilization rate. For some special group of lung transplantation recipients, in end-Stage Pneumoconiosis and LAM patients, most of them are young without multi-organ dysfunction, have better survival outcome post-lung transplantation. We established the charity program to provide more support for these families and save their lives. The hottest topic in lung transplantation in these years, perhaps, is the Lung Transplantation in COVID-19 patients. In early 2020, we have many critical COVID-19 patients with ECMO for months. The first case of lung transplantation for COVID-19 ARDS patient was performed in February, 2020. National Lung Transplantation

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Expert Group for COVID-19 was established to save more end-stage critical patients by lung transplantation. We used the highest level of protective measures for the transplant team in a specially reconstructed isolated hospital. The standardized negative-pressure operating room was used with the medical team fully equipped and remote monitored. Explanted lungs from patient is shown. Considering the long-time ECMO and intubation period, rehabilitation with psychological support from family and friends, was very important for these patients. We have seen that lung transplantation has developed fast in our Asian region. We would like to share some thoughts on our future in lung transplantation. From 2015, we have a new organ donation and allocation system in China, and it is highly praised and recognized by WHO. And we should see that, in lung transplantation academic world globally, our collaboration and connection with western centers is still weak. Although people have begun to see us, it is really not enough for us to be integrated into the international community. As we know, the Asia-Pacific represents 60% of the world's population, an ageing population where chronic disease is on the rise; so it's critical we come together as leaders, fully using our established platforms, such as AST, ATW, APACMED in Asia, and New horizon collaboration platform with European organ transplantation society. Furthermore, new topics are arising in organ transplantation field, especially for the xenotransplantation. Lung xenotransplantation might be the pearl in this field. We have formed the expert consensus on clinical trials which may come to practice in the near future. We are looking forward to collaborate with our Asian colleagues on this, in order to face the future challenge.