

heart-lung or double lung transplantation for pulmonary endarterectomy failure

Olaf Mercier, Elie Fadel, Sacha Mussot, Dominique Fabre, François Leroy Ladurie, Jérôme Lepavec, Philippe Dartevelle

Department of Thoracic Surgery, Marie Lannelongue Hospital, Le Plessis Robinson, France

Background: Pulmonary endarterectomy (PEA) is the treatment of choice for chronic thrombo-embolic pulmonary hypertension (CTEPH). However, the standard preoperative work up could not eliminate the risk of PEA failure with a life threatening persistent pulmonary hypertension requiring, when the patient is eligible, to discuss double-lung (DLT) or heart-lung transplantation (HLT).

Methods: We retrospectively reviewed our experience with DLT or HLT in patients after PEA failure between 1997 and 2010.

Results: Among the 859 patients who underwent PEA, 10 (1.2%) were listed for transplantation. There were 3 men and 7 women with a mean age of 38 ± 14 years and a mean preoperative total pulmonary resistance of 1330 ± 300 dynes.cm⁻¹.s⁻⁵. Seven patients had an early PEA failure (EPF) and could not be weaned from the cardio-pulmonary bypass. They all had had a mechanical heart and lung support as a bridge to transplantation (arterio-venous extracorporeal membrane oxygenation in 5 and Novalung pumpless device connected between the pulmonary artery and the left atrium in 2 patients) and were listed for HLT. The remaining 3 patients had a late PEA failure (LPF) with persistent pulmonary hypertension (n=1) or recurrent pulmonary hypertension despite an early hemodynamic improvement (n=2). These patients were conversely listed for DLT as pulmonary arteries were less vulnerable. Two (20%) of the EPF patients died of pneumonia while waiting a donor. The mean waiting time for HLT and DLT were 4 ± 2 days and 463 ± 490 days, respectively. The 30-day mortality was 37.5% after transplantation (acute antibody-mediated rejection (n=1), primary graft dysfunctions (n=2)). Four patients are alive and healthy more than one year after the transplantation.

Conclusions:

Although PEA is the treatment of choice for patients with CTEPH, early or late failure can occur requiring in young patients the use of HLT after a mechanical heart and lung support or DLT. Our results support that all teams performing PEA should be able to perform DLT or HLT as well.