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.