PREDICTIVE FACTORS FOR SUCCESS OF PULMONARY ENDARTERECTOMY (PEA) IN CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION (CTEPH)


Objectives: To assess outcome after PEA and identify 1) factors affecting short and long-term survival; 2) predictive factors of hemodynamics and NYHA functional class improvement.

Patients and Methods: A total of 190 consecutive patients who underwent PEA between 2005 and 2009 were retrospectively reviewed. Forty patients were not analysed due to lost to follow-up or lacking data. A total of 150 patients (83 F; age 60±14 y) were evaluated before and 7.5±1 months after PEA by NYHA class, 6–minute walk distance (6MWD) and right heart catheterisation. Before PEA, 114/150 patients (76%) were in NYHA class III or IV, mean 6MWD was 313±158 m and pulmonary vascular resistance (PVR) was 755±346 dyn.s.cm⁻⁵. A multivariate analysis was performed to identify preoperative independent predictive factors for mortality and improvement of hemodynamics and NYHA functional class.

Results: Mortality rate at 1 month, 1 year and 3 years after PEA was 2.8%, 6.9% and 7.5% respectively. Preoperative PVR was predictive of 1-month, 1- and 3-year mortality and age was the other predictive factor of mortality at 1- and 3-year. At 7.5±1 months after PEA, an improvement in NYHA class (80% in NYHA I or II) and 6MWD (313±158 vs. 399±146 m; p<0.001) was observed and PVR decreased from 775±346 to 307±221 dyn.s.cm⁻⁵ (p<0.001). In 96 patients (64%), postoperative PVR decreased by at least 50% and/or was reduced to lower than 250 dyn.s.cm⁻⁵. Preoperative PVR and carbon monoxide transfer factor (T_{LCO})
were identified as independent predictive factors of hemodynamics and NYHA functional class improvement.

**Conclusion:** PEA is associated with an excellent long-term survival and a marked improvement in clinical status and hemodynamics in most cases. High preoperative PVR and/or low $T_{LCO}$ might predict inadequate postoperative hemodynamics and NYHA functional class.

**Affiliations:**

C Tromeur: Université de Bretagne Occidentale, Hôpital La Cavale-Blanche, Brest, France

X Jaïs: Université Paris-Sud, Hôpital Bicêtre, Le Kremlin-Bicêtre, France

O Mercier: Université Paris-Sud, Centre Chirurgical Marie Lannelongue, Le Plessis-Robinson, France.

D Montani: Université Paris-Sud, Hôpital Bicêtre, Le Kremlin-Bicêtre, France

L Savale: Université Paris-Sud, Hôpital Bicêtre, Le Kremlin-Bicêtre, France

S Gunther: Université Paris-Sud, Hôpital Bicêtre, Le Kremlin-Bicêtre, France

E Artaud-Macari: Université Paris-Sud, Hôpital Bicêtre, Le Kremlin-Bicêtre, France

O Sitbon: Université Paris-Sud, Hôpital Bicêtre, Le Kremlin-Bicêtre, France

E Fadel: Université Paris-Sud, Centre Chirurgical Marie Lannelongue, Le Plessis-Robinson, France.

S Mussot: Université Paris-Sud, Centre Chirurgical Marie Lannelongue, Le Plessis-Robinson, France.

M Humbert: Université Paris-Sud, Hôpital Bicêtre, Le Kremlin-Bicêtre, France

P Dartevelle: Université Paris-Sud, Centre Chirurgical Marie Lannelongue, Le Plessis-Robinson, France.

F Couturaud: Université de Bretagne Occidentale, Hôpital La Cavale-Blanche, Brest, France

G Simonneau: Université Paris-Sud, Hôpital Bicêtre, Le Kremlin-Bicêtre, France