

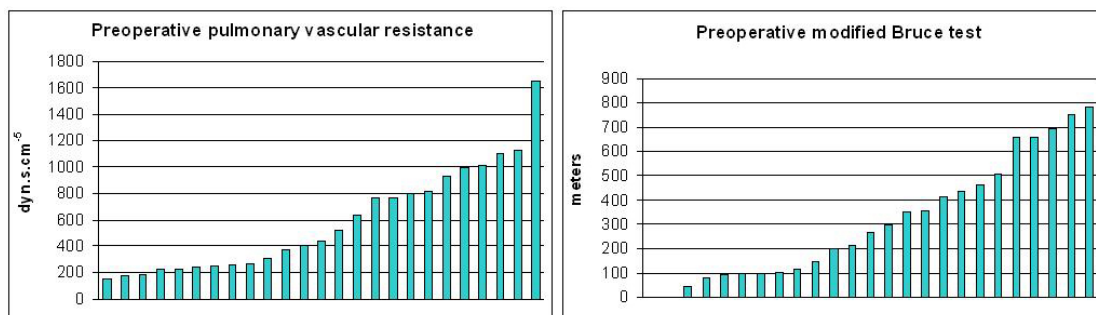
## Early Surgery in WHO Class II Patients with Chronic Thromboembolic Pulmonary Hypertension

*Morsolini, Marco; Nicolardi, Salvatore; Mattiucci, Gabriella; Goggi, Claudio; D'Armini, Andrea; Vigano', Mario*

*Foundation 'I.R.C.C.S. San Matteo' Hospital, Pavia, Italy*

Background: Patients with chronic thromboembolic pulmonary hypertension (CTEPH) may present with a variety of debilitating symptoms, reflecting right ventricular failure and, in more advanced disease, biventricular failure with low systemic cardiac output. According to the length of the disease, in the non-occluded arteries an arteriopathy may develop, due to volume and pressure overload. Such pathophysiological modifications include hypertensive vascular remodeling, atherosclerotic arteriopathy of the obstructed branches, plexiform lesions, pathological systemic-to-pulmonary arterial shunts and in situ thrombosis. Once diagnosed, pulmonary endarterectomy (PEA) is the most effective treatment. As referral is increasing, some pts are presenting with mild symptoms. However, indication for surgery in WHO functional class II pts is still controversial.

Methods: From April 1994 to November 2010, 321 PEAs were performed at our Centre. Patients presented pre-operatively with WHO II (7.8%), WHO III (46.3%) and WHO IV (45.9%) symptoms. Among WHO II pts (25) we observed a wide spectrum of clinical features: 12 patients were sportsmen (48%) with high exercise tolerance, and 13 patients had sedentary lifestyles (52%) and rarely competed with physical activity. Hence, into this group important differences come out in terms of hemodynamic and functional impairment, as shown in figure.



Results: Post-operative outcome after PEA in WHO II patients is shown in table.

Mean preoperative pulmonary vascular resistance (dyn*s*cm-5)	566±336
Mean postoperative pulmonary vascular resistance (dyn*s*cm-5)	187±115
Median postoperative mechanical ventilation duration (days)	1 (1-3)
Mean postoperative hospital stay (days)	13±7
Postoperative morbidity (%)	4
Operative mortality (%)	0

Conclusions: The pulmonary pathophysiological modifications are absolutely not predictable, since CTEPH may develop during indefinite months or years, considering chronic relapses of asymptomatic pulmonary embolism. Hence, once diagnosed, CTEPH pts must be referred immediately to surgery, before hypertensive vascular remodeling develops. Based on the excellent results in terms of hemodynamic improvement and very low operative risk, our experience suggests that indication for PEA should be safely extended even to WHO II pts.