

OUTCOME OF PULMONARY ENDARTERECTOMY IN SYMPTOMATIC CHRONIC THROMBOEMBOLIC DISEASE

Dolores Taboada¹, Joanna Pepke-Zaba¹, David P Jenkins², Marius Berman², John E Cannon¹, Mark Toshner¹, John J Dunning², Choo Ng², Steven S Tsui², Karen K Sheares¹.

Affiliations: ¹Pulmonary Vascular Disease Unit and ²Department of Cardiothoracic Surgery, Papworth Hospital, Cambridge, United Kingdom.

Background: Chronic thromboembolic disease (CTED) is characterised by persistent pulmonary thromboembolic occlusions without pulmonary hypertension as per current threshold definition. Early surgical treatment with Pulmonary Endarterectomy (PEA) may improve symptoms and prevent disease progression. The outcome of PEA in CTED patients has not been formally reviewed previously.

Objectives: To assess the outcome of PEA in symptomatic patients with extensive CTED.

Methods: Patients with CTED and a mean pulmonary artery pressure (mPAP) < 25 mmHg on baseline right heart catheterisation treated with PEA between January 2000 and July 2013 were identified. Baseline characteristics, perioperative data and postoperative assessment results were collected. Patients were reassessed at 6 months and 1 year following surgery.

Results: Between January 2000 and July 2013, 1019 patients underwent PEA at Papworth Hospital. Of those, 42 patients fulfilled the criteria of having CTED and a mean PAP of less than 25 mmHg. Mean age was 49 ± 16 years and 60% of patients were female. There was no in-hospital mortality and median length of stay was 11 days, but complications occurred in 40% of patients. At one year following surgery, 95% of patients remained alive. Postoperative outcome variables measured at 6

months and 1-year post PEA are displayed in Table 1. There was a significant improvement in symptoms with 95% of patients returning to New York Heart Association (NYHA) functional class I and II during the first year of the surgery. There was a reduction in mPAP and pulmonary vascular resistance (PVR) with no change in cardiac index. Six minute walking distance (6MWD) improved at 6 months and this was maintained at one year. A significant improvement of health related quality of life measured with the Cambridge Pulmonary Hypertension Outcome Review (CAMPHOR) questionnaire was observed at 6 months and sustained at 1 year.

Conclusion: In this carefully selected cohort of CTED patients, PEA resulted in a significant improvement in symptoms, functional status and quality of life. Appropriate patient selection is paramount given the associated risks and morbidity reported, despite mature centre expertise.

We would like to acknowledge the national pulmonary hypertension centres in the UK and Ireland, and support by the Cambridge NIHR Comprehensive Biomedical Research Centre.

TABLE 1. Postoperative outcome at 6 months and 1 year post Pulmonary Endarterectomy			
	Baseline	1st visit post PEA	2nd visit post PEA
NYHA functional class [n, I/II/III/na]	0/20/22/0	16/21/2/0 *	17/12/1/1 *
Haemodynamics	n=42	n=38	
PAP mean [mmHg, median (IQR)]	21 (5)	18 (5) *	
Cardiac index [L/min/m ² , mean ± SD]	2.6 ± 0.5	2.5 ± 0.4	
PVR [dynes.s.cm ⁻⁵ , median (IQR)]	164 (104)	128 (60) *	
6MWT	n=37	n=34	n=27
Distance [m, mean ± SD]	372 ± 117	413 ± 90 *	421 ± 113*
Baseline SpO ₂ [%, mean ± SD]	97±2	97 ± 2	97 ± 2
Min SpO ₂ on exercise [%, median (IQR)]	91 (6)	93 (5)	93 (3) *
CAMPHOR	n= 36	n=31	n= 27
Total score [median (IQR)]	40 (33)	11 (30) *	11 (37) *
Symptoms [median (IQR)]	15 (13)	4 (12) *	5 (12) *

Activity [median (IQR)]	10 (9)	5 (6) *	4 (11) *
Quality of life [median (IQR)]	14 (14)	2 (11) *	1 (12) *
<p>NYHA: New York Heart Association; na: not applicable; PAP: pulmonary artery pressure; PVR: pulmonary vascular resistance; 6MWT: Six minute walking test; Min: minimal, SpO2: peripheral oxygen saturation; CAMPHOR (Cambridge Pulmonary hypertension outcome review) is a disease specific and negatively weighted quality of life questionnaire. * p < 0.05 compared to baseline</p>			