

PULMONARY ENDARTERECTOMY AT ST. VINCENT'S HOSPITAL, SYDNEY: COMMENCING A SURGICAL PROGRAM THROUGH MENTORSHIP AND DUAL REVIEWS FOR PATIENT SELECTION

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Abstract

Objectives: Pulmonary endarterectomy (PEA) represents a curative therapeutic option for patients with surgically amenable chronic thromboembolic pulmonary hypertension (CTEPH). This retrospective study evaluates PEAs conducted at St. Vincent's Hospital, Sydney, Australia upon commencement of a new program with surgical mentorship and dual evaluation for patient selection.

Methods: 18 consecutive CTEPH patients (mean age, 68 ±9 years) underwent PEA between November 2010 and September 2013. Patients were initially evaluated at St Vincent's Hospital, Sydney and subsequently at the CTEPH multi-disciplinary meeting at Papworth Hospital, Cambridge, UK. An experienced surgeon mentored the first five procedures. PEA involved median sternotomy, cardiopulmonary bypass and deep hypothermic circulatory arrest (DHCA at 20°C) to enable complete endarterectomy. 2 patients with pulmonary angiosarcoma were excluded. Patients were New York Heart Association (NYHA) classes II (n=2), III (n=11) or IV (n=4) pre-operatively. Follow-up was at 3, 6 and 12 months.

Results: Pulmonary vascular resistance improved immediately post-operatively from 889 ±362 dynes/sec/cm⁵ to 332 ±81 dynes/sec/cm⁵ (p=0.00001). Mean pulmonary arterial pressure fell from 50.6 ±11.9 mmHg to 31.0 ± 4.1 mmHg (p=0.0000002). Cardiac index improved from 2.1 ±0.5 l/min/m² to 2.6 ±0.5 l/min/m² (p=0.005). Six-minute-walk test scores increased from 297 ±124m pre-operatively to 418 ±55m at 6 months post-PEA (p=0.009) and 428 ±64m at 12 months post-PEA (p=0.004). One mortality (5.6%) resulted from persistent pulmonary hypertension in a patient with pre-operative decompensated right-heart-failure, in whom PEA was performed as a salvage procedure. At last follow-up, patients were NYHA classes I (n=5), II (n=10) and III (n=1) with 2 patients awaiting 3 month follow-up. Mean bypass time was 333 ±86 minutes and mean DHCA time was 48 ±17 minutes.

Conclusions: In CTEPH patients with surgically accessible disease, PEA leads to immediate reduction in pulmonary pressures followed by significant improvements in exercise capacity and quality-of-life. Excellent results can be achieved through the use of surgical mentorship and dual reviews of patient selection from partnership with a high volume established PEA program.