

# **OUTCOME AFTER PULMONARY ENDARTERECTOMY (PEA): LONG TERM FOLLOW-UP OF THE UK NATIONAL COHORT**

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## **Objective**

Chronic thromboembolic pulmonary hypertension (CTEPH) is a life threatening condition that historically has a poor outcome with supportive medical treatment. Pulmonary endarterectomy (PEA) is the treatment of choice and offers the only chance of cure. Data on the long-term survival and factors associated with poorer survival after PEA are limited. We analysed the long-term data for the UK national PEA cohort.

## **Method**

All patients who underwent a PEA for CTEPH at Papworth hospital between January 1997 and December 2012 were included. Pre- and post-operative data on haemodynamics, exercise capacity, functional class and targeted PAH therapies taken were obtained from the databases of the UK PH centres.

Data are presented as mean  $\pm$  standard deviation. The NHS spine summary care record tracking system was used for survival data and causes of death from our database or from the England and Scotland General Register Offices. The causes of death were further classified into 5 groups: 1. Post operative, 2. Right ventricular failure away from operative period, 3. Related to anticoagulation, 4. Unrelated to CTEPH e.g. malignancy, 5. Unknown.

## **Results**

880 patients underwent PEA over the 15-year period. The mean age was 57 years (range 15–84) and 53% were male. 89% were in WHO functional class 3 or 4 prior to surgery with an average mPAP of  $47 \pm 11$  mmHg, PVR of  $830 \pm 382$  dynes/sec/cm<sup>5</sup> and six-minute walk distance (6MWD) of  $260 \pm 126$  m. 64% of patients were taking at least 1 targeted therapy as a "bridge to surgery". Post surgery 84% of patients were in WHO functional class 1 or 2 and there was a reduction in the average mPAP to  $27 \pm 9$  mmHg and PVR to  $286 \pm 198$  dynes/sec/cm<sup>5</sup> by 12 months ( $p < 0.001$  vs pre-op values). The 6MWD increased to  $384 \pm 119$  m ( $p < 0.001$  vs pre-op). 23% of patients used targeted therapy during a mean follow-up of 4.3 years post PEA. The 10 year all cause mortality post PEA was 28% ( $n=173$ ) with 54% in the post-operative period, 21% unrelated to CTEPH, 16% due to right heart failure, 7% related to anticoagulation and 2% unknown. Work is ongoing to determine the factors associated with worse outcome post PEA and in particular those patients that should be closely monitored and/or started on targeted therapy post PEA.

## **Conclusion**

This is the largest reported PEA series with a 10-year follow-up and cause of death identified. There was prolonged haemodynamic improvement but targeted therapy was used in 23% of patients with a mean follow-up of 4.3 years. The 10-year survival was 72%, which is comparable to published data (75% 10-year survival, Madani Ann Thor Surg 2012) but with an older mean age in our series. The mortality was predominantly in the peri-operative period and later due to causes unrelated to CTEPH.