Pulmonary endarterectomy for the treatment of chronic thromboembolic pulmonary hypertension in Jehovah's Witness patients: the UK experience

L d'Amours[1], M Mehanna[2], C Ng[2], J Pepke-Zaba[1], J Taghavi[2], M Toshner[1], S Tsui[2], DP Jenkins[2], K Sheares[1]
1. Pulmonary Vascular Diseases Unit, Royal Papworth Hospital, Cambridge, UK
2. Department of Cardiothoracic Surgery, Royal Papworth Hospital, Cambridge, UK

NHS
Royal Papworth Hospital
NHS Foundation Trust

INTRODUCTION

Jehovah's Witness (JW) patients decline transfusion of blood and blood products, presenting challenges in the perioperative management of surgery where bleeding is a major complication.

Multimodality treatment options for chronic thromboembolic pulmonary hypertension (CTEPH) are available at Royal Papworth Hospital. All cases are reviewed at the National CTEPH multidisciplinary team meeting. Individualised therapeutic modalities include pulmonary endarterectomy (PEA) surgery, balloon pulmonary angioplasty (BPA) and pulmonary hypertension targeted medical therapy. Potential complications of PEA include airway bleeding (6.6%) and the need for ECMO support for severe complications (4.7%).[1,2]

OBJECTIVE

To examine the outcomes of JW patients with CTEPH treated with PEA.

METHODS

- We reviewed all JW patients undergoing PEA between 2020 and 2025 at Royal Papworth Hospital.
- All patients were reviewed in clinic by an experienced surgical consultant and a nurse specialist preoperatively. They signed a specific consent form detailing their refusal of blood and blood products.
- All patients consented to the use of the cell saver intraoperatively, and preoperative haemoglobin (Hb) levels were optimised if required.
- The insertion and removal of monitoring lines and haemostasis at PEA were carried out meticulously.
- Standardised follow-up at 3–6 months post-PEA included functional, imaging and haemodynamic assessment.

CONCLUSION

In this select cohort of JW patients, PEA performed by an experienced team with preoperative Hb optimisation and perioperative blood conservation strategies was achieved without major complications.

RESULTS

- Of the 977 patients who underwent PEA during the study period, **3 were JW patients**.
- An additional JW patient declined surgery and was treated with BPA.
- All patients were on pulmonary vasodilators preoperatively, which were discontinued immediately after PEA.
- Cardiopulmonary bypass time was 199-224 minutes, with circulatory arrest of 26-33 minutes, comparable to non-JW patients.[3]
- The average chest drainage output at 24 hours postoperatively was 228 mL.
- No patient experienced significant airway bleeding.
- 2 patients were commenced on vasodilator therapy for residual CTEPH.
- All patients were alive at the 3-6-month post-PEA assessment.

Table 1: Comparison of pre- and post-PEA values

	Pre-op (range of values)	3-6-month assessment (range of values)
Hb (g/L)	125 – 143	106 – 137*
Platelet count (x 10^9/L)	210 – 281	111 – 141*
NYHA class	III	II – III
6MWD (m)	60 – 300	373 – 414
NT-proBNP (ng/L)	696 – 2535	206 – 472
mPAP (mmHg)	37 – 63	24 – 69
PVR (dyn.s.cm^{-5})	583 – 937	186 – 963
CI (L/min/m^2)	1.7 – 2.8	1.9 – 4.2

*Values before discharge from hospital after PEA

REFERENCES
1. Kabadi AA, Fernandes TM, et al. Airway Hemorrhage Complicating Pulmonary Thromboendarterectomy: Risk Factors and Outcomes. Ann Thorac Surg 2023: 116(1): 121-128.
2. Chia AXF, Valchanov K, et al. Perioperative extracorporeal membrane oxygenation support for pulmonary endarterectomy: A 17-year experience from the UK national cohort. J Heart Lung Transplant 2024: 43(2): 241-250.
3. Kumar U, Chiu S, et al. Safety and efficacy of a dedicated pulmonary thromboendarterectomy fellowship: The Royal Papworth experience at a high-volume center. J Thorac Cardiovasc Surg 2026.

Correspondence: laurence.damours.1@ulaval.ca