

Outcomes of expanded polytetrafluoroethylene pericardial membrane implantation in left ventricular assist device explantation and heart transplantation

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May 14, 2022

Abstract

Objectives Redo sternotomy and explantation of left ventricular assist devices (LVAD) for heart transplantation (HT) involve prolonged dissection, potential injury to mediastinal structures and/or bleeding. Our study compared a complete expanded polytetrafluoroethylene (ePTFE) wrap versus minimal or no ePTFE during LVAD implantation, on outcomes of subsequent HT. **Methods** Between July 2005 and July 2018, 84 patients underwent a LVAD implant and later underwent HT. Thirty patients received a complete ePTFE wrap during LVAD implantation (Group 1), and 54 patients received either a sheet of ePTFE placed in the anterior mediastinum or no ePTFE (Group 2). **Results** Baseline characteristics were similar between Groups 1 and 2. Surgeons reported subjective improvements in speed, predictability and safety of dissection with complete ePTFE compared with minimal or no ePTFE. Time from incision to initiation of cardiopulmonary bypass (CPB) were similar between groups (97±38 min vs 89±29 min, p=0.3). Injury to mediastinal structures during the dissection was similar between groups (10% vs 11%, p>0.9). While surgeons reported less intraoperative bleeding in Group 1 (43% vs 61%), this trend did not reach significance (p=0.1). In-hospital mortality, ICU length of stay and hospital length of stay were similar between both groups. **Conclusions** In patients undergoing LVAD explant-HT, there was a trend towards reduced surgeon reported intraoperative bleeding with ePTFE placement. Despite qualitatively reported greater ease and speed of mediastinal dissection with ePTFE membrane placement, time to initiation of CPB did not differ, likely because surgeons remained cautious, allowing extra time for unanticipated difficulties.

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