Long-Term Follow up and Predicting Factors of de Novo Aortic Regurgitation after LVAD Implantation

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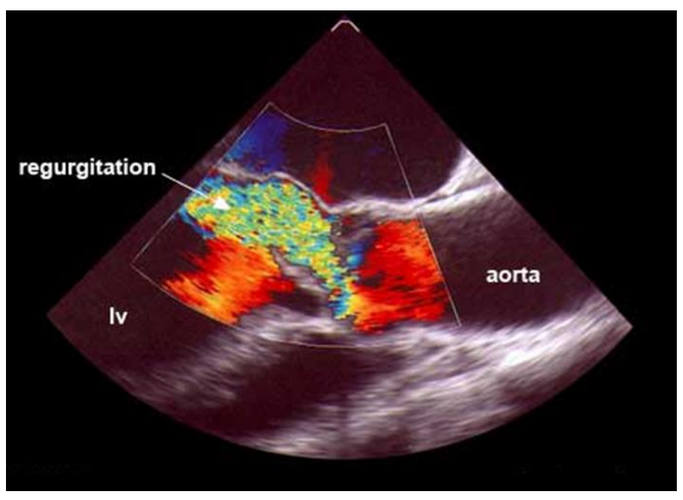
OBJECTIVES

The onset of aortic regurgitation (AR) after left ventricular assist device (LVAD) implantation can affect device performance and patient outcomes.

This single-centre study analyses the predictor factors for development of AR at long-term follow-up after implantation of LVADs.



METHODS

Inclusion criteria for this study were: no previous or concomitant aortic valve surgery, no biventricular device implantation and duration of support longer than 1 year.

Between December 2007 and June 2016 215 patients underwent LVAD implantation at our institute and 112 patients fulfilled these criteria and were included in the study.

Serial echocardiograms were obtained preoperatively, at 6, 12 and 18 months postoperatively, and then at a minimum of 6 months intervals in patients with longer-term support.

Kaplan-Meier estimates for freedom from moderate or greater AR were generated and preoperative predicting factors were analysed.

RESULTS

Median duration of LVAD support was 805 days (range 372 to 3028 days). Preoperatively 99 patients had no AR (88.4%) while 13 patients had mild or less degree of AR (11.6%). Male sex was predominant (80 patients, 71.4%) as dilated cardiomyopathy etiology (77 pts, 68.8%).

The patients underwent Heartware LVAD (89, 79.5%) or HeartMate II (23, 20,5%) implantation. Mean age was 45.6 years, mean BSA was 1.94 m2 and mean BMI 25.9. Comorbidities included COPD (7 pts, 6.3%), diabetes (13 pts 11.6%), smoking history (44 pts, 39.3%), chronic kidney disease (17 pts, 15.2%) and hypertension (15 patients, 13.4%). A previous sternotomy was present in 14 patients (12.5%).

Moderate or greater AR developed in 21 patients (18.8%) after a median of 766 days (range 157-2505 days). We analysed these preoperative factors and Kaplan Mayer estimates were statistically significant only for any degree of pre-operative AR (p=0.001), female sex (p=0.007) and BSA smaller than 2 (p=0.035).

CONCLUSION

The incidence of significant AR after LVAD implantation is associated with the presence of pre-operative AR, female sex and smaller BSA.

The clinical implications of these data may suggest of lowering the threshold for prophylactic aortic valve replacement at the time of LVAD implantation.

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I will not discuss off label use of the following drugs/devices: HeartMate II, HeartWare HVAD
The following relevant financial relationships exist related to this presentation:
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