



# Indications and Outcomes of Pump Exchange of Patients on Durable Continuous Flow Left Ventricular Device

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## Introduction

- Scarcity of donor hearts coupled with survival and quality of life benefits provided by left ventricular assist devices (LVAD) has resulted in an increase in LVAD volumes.<sup>1</sup>
- However, LVAD complications including pump thromboses, malfunction and infections may at times necessitate pump exchange.
- Our objective was to describe indications and survival after pump exchange in a contemporary cohort of LVAD patients.

## Methods

- We examined all sequential pump exchanges that occurred at a single, large, tertiary care, academic center from 2008 to 2017 among patients with durable continuous flow LVADs.
- Data was abstracted through detailed retrospective chart review of medical records.
- All continuous variables are described as mean  $\pm$  standard deviation and categorical variables as percentages.
- Kaplan Meier survival curve was plotted for all patients.

## References

1 Khazanie P et al Trends in the Use and Outcomes of Ventricular Assist Devices Among Medicare Beneficiaries, 2006 Through 2011. Journal of American College of Cardiology 2014

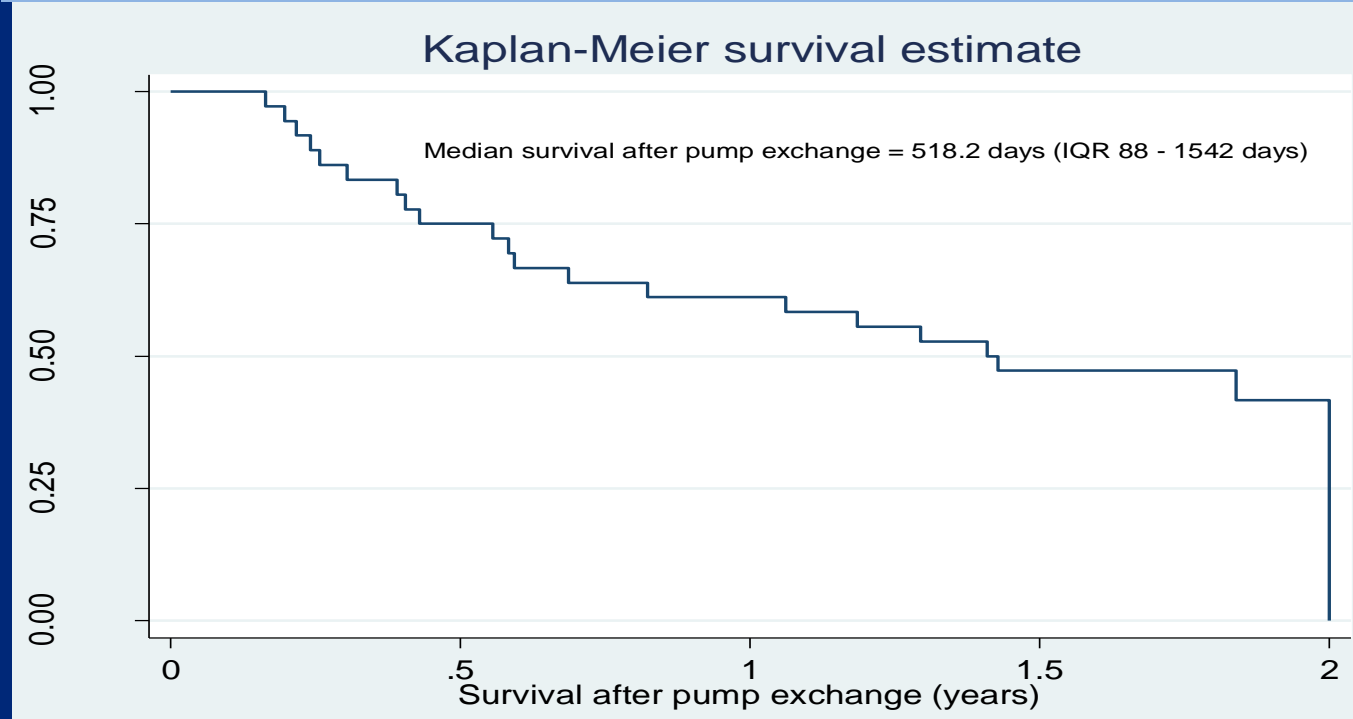
## Disclosures

The authors have no relevant disclosures

## Results

- A total of 33 patients underwent 36 pump exchanges from Jan 1, 2008 to June 30, 2017
- Overall, 64% patients were males with a mean age of  $57 \pm 13.5$  years. Initial LVAD type was Heartmate II in 31 patients and HeartWare in 5. After exchange, HeartMate II was reimplanted in 30 patients, HeartWare in 5 patients and HeartMate III in 1 patient.
- Indications for pump exchange included pump thromboses (n = 32), internal driveline malfunction (n = 3) and fungemia (n = 1).
- Among patients with pump thromboses, commonest presentation was elevated lactate dehydrogenase and other evidence of hemolysis (n = 31) followed by power spikes (n = 15) and decompensated heart failure (n = 14). Treatment for pump thrombosis included heparin for all, 50% patients received second antiplatelet agent in addition to aspirin and 3 patients received thrombolytics.
- A total of 5 patient underwent transplant after pump exchange and 18 patients died over follow-up period. Median survival time after pump exchange was 518 days (IQR 88 – 1542 days, Figure). Thirty day survival was 100% and 1 year survival was 75%.

Kaplan-Meier Survival estimate of patients undergoing Pump Exchange



## Conclusions

- The most common indication for pump exchange was pump thromboses.
- Thirty day survival after pump exchange in our cohort was 100% and 1 year survival was 75%.
- Carefully selected patients who undergo pump exchange can achieve longevity with long term support on a second LVAD.
- Future studies will determine characteristics of patients who achieve and who do not achieve long term survival to optimize clinical events in this patient population