

A Single-Center Experience of Aortic Root Replacement with the Freestyle Prosthesis

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Disclosures

- None



Background

- Aortic root replacement with a stentless valve has become an effective treatment option for patients with aortic root pathology compared to conventional stented aortic valves^{1,2}.
 - The malleable nature of the heterograft is especially beneficial for positioning in the presence of a scar from redo operations or from aortic root abscesses
 - However, candidates for aortic root replacements tend to be severely comorbid populations that are at high risk of mortality following sternotomy³.
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- 1. van der Straaten et al. *European Journal of Cardio-Thoracic Surgery*. PMID 26224338
 - 2. Harky et al. *Innovations*. PMID 30543577
 - 3. Easo et al. *Scientific Reports*. PMID 30867492

Purpose

- **Evaluate the outcomes of adult patients (≥ 18 years) who underwent aortic root replacement with the Medtronic Freestyle prosthesis (Medtronic, Minneapolis, MN, USA)**

Methods

- **Retrospective single-center review**
 - Adult patients (≥ 18 years) who underwent aortic root replacement with a Medtronic Freestyle prosthesis
 - July 1, 2014 to May 15, 2023
- **Data Collection**
 - Descriptive statistics were performed
 - Continuous variables are reported as mean \pm standard deviation or median (interquartile range)
 - Categorical variables are reported as frequency and percentage.

Study Population

Adults (≥ 18 years) who
underwent root replacement with
the Medtronic Freestyle
prosthesis



127 Patients
(7/1/2014-5/15/23)

Mean Age: 60.1 ± 15.2 years

64.3% (n=148) Male

Baseline Characteristics

	All Patients (n=127)
Prior Sternotomy (≥ 1)	102 (80.3%)
Hypertension	95 (74.8%)
Diabetes Mellitus	43 (33.9%)
Pre-op Acute Kidney Injury	11 (8.7%)
Pre-op Chronic Kidney Disease	24 (18.9%)
History of Stroke	33 (26.0%)
Indication for Aortic Root Replacement Endocarditis	60 (47.2%)

Intraoperative Details

	All Patients (n=127)
Mean Valve Size (mm)	26.0 ± 2.2
Cardiopulmonary Bypass Time (min)	312.5 ± 103.4
Aortic Cross-clamp Time (min)	220.5 ± 70.7

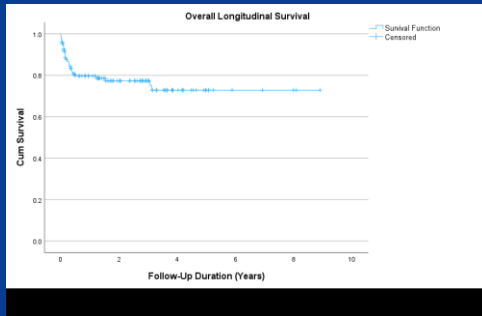
Postoperative Details

	All Patients (n=127)
Required Permanent Dialysis	8 (6.3%)
Pneumonia	12 (9.5%)
Stroke	7 (5.5%)
Implantation of New Permanent Pacemaker	47 (37.0%)
In-Hospital Mortality	10 (7.9%)

Follow-up Details

	All Patients (n=127)
Pseudoaneurysm of Aortic Root	3 (2.4%)
Echocardiography	54 (42.5%)
Median Follow-up Time (Days)	213 (IQR 49.3-525)
Peak Aortic Gradient (mmHg)	21.8 ± 9.8
Mean Gradient (mmHg)	9.5 ± 4.5

Figure 1. Overall Longitudinal Kaplan-Meier Survival for the Entire Cohort



Conclusions

- **Among high-risk patients undergoing aortic root replacement at a single center, the Freestyle prosthesis is associated with limited rates of postoperative morbidity.**