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Ibrahim Khalil

Sakshi Patel

Mary McFarland

Puja Patel MD

Alexander Makkinejad

*See next page for additional authors*

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**Authors**

Ibrahim Khalil, Sakshi Patel, Mary McFarland, Puja Patel MD, Alexander Makkinejad, and James K. Wu MD

# Mid-Term Outcome of Transcatheter Aortic Valve Replacement (TAVR) in Patients With Renal Failure on Hemodialysis

Ibrahim Khalil; Sakshi Patel; Mary McFarland; Pujja Patel, MD; Alexander Makkinejad, BS; Dr. James K. Wu, MD  
Lehigh Valley Heart & Vascular Institute, LVPG Cardiac & Thoracic Surgery, Division of Cardiothoracic Surgery

## Introduction

- TAVR is a prevalent treatment choice for patients with severe aortic stenosis and high surgical risk.
- Dialyzed patients experience accelerated calcification and degeneration of heart valve prostheses, producing a higher failure rate<sup>2</sup>.
- At LVHN, 1106 patients underwent TAVR during the study period. 24 of these patients were on dialysis.

- This study aims to investigate the mid-term outcomes and risk factors for mortality for TAVR patients with renal failure on hemodialysis.

## Methods

- Reviews of numerous medical journals to establish effects of dialysis on bioprostheses as well as survival of TAVR patients without renal failure in order to compare results with renal failure patients
- Inclusion criteria: patient underwent TAVR while on preoperative dialysis
- A retrospective chart review was performed using Research Electronic Data Capture (REDCap) and EPIC
- From 1/16/2016 to 11/18/2021, 24 eligible patient records were found and then investigated using 45 different fields to compare from
- Data was compiled and categorized to investigate trends
- Trends were compared to that of non-dialyzed TAVR patients and conclusions were drawn

## Results

Among 24 patients, 14 deaths (58.3%) occurred over a ~5-year period. The average time until death post-TAVR was 1.62 years. Survivors, on average, have been alive 2.3 years post-TAVR. According to the 10 surviving patients' most recent echocardiograms, the replaced aortic valves are still functional (AV area, LVEF, AV gradient all in normal range for TAVR).

Figure 1. % Survival per year for TAVR patients with renal failure

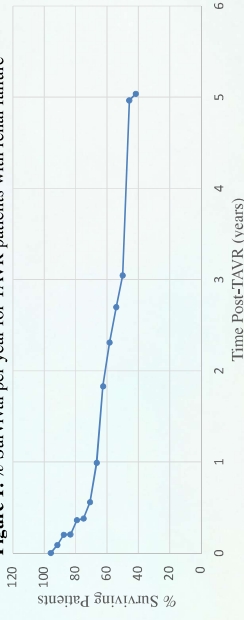
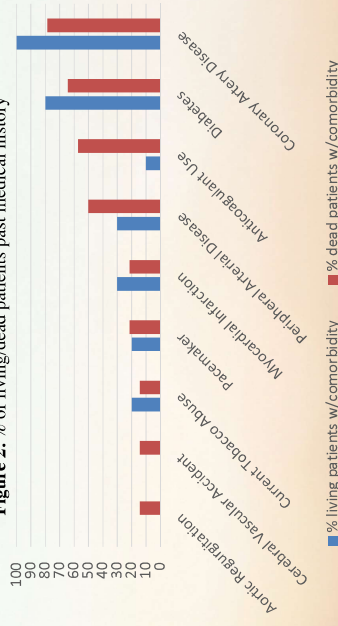


Figure 2. % of living/dead patients past medical history



## Conclusion

- Patients on hemodialysis experienced a lower 3-year post-TAVR survival compared to those without, going from 67.1% survival<sup>1</sup> to 54.2% (see fig. 1).
- TAVR survival among renal failure patients was not affected by factors such as AV area, LVEF, native AV calcification, or AV gradient.
- Long-term pre-operative anticoagulation was associated with a significantly higher mortality rate (see fig. 2), specifically death from CVA.

## Recommendation

- Patients on hemodialysis should still undergo TAVR as it provides relief albeit at a 7% lower 3-year survival rate.
- Regardless, for patients on dialysis, the procedure is still effective, as shown in the sustained function of the implanted valve several years post-operation.
- It may be prudent to exercise caution in performing TAVR on patients who are undergoing long-term anticoagulation, as this proved to be a prevalent risk-factor in patients who died post-intervention. However, more research needs to be done to confirm this incidence.

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