

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

Ibrahim Khalil

Sakshi Patel

Mary McFarland

Puja Patel MD

Lehigh Valley Health Network, puja.patel@lvhn.org

Alexander Makkinejad

Lehigh Valley Health Network, alexander.makkinejad@lvhn.org

See next page for additional authors

Follow this and additional works at: <https://scholarlyworks.lvhn.org/research-scholars>



Part of the [Medicine and Health Sciences Commons](#)

Let us know how access to this document benefits you

Published In/Presented At

Khalil, I., Patel, S., McFarland, M., Patel, P., Makkinejad, A., & Wu, J.K. (2022). *Mid-term outcome of transcatheter aortic valve replacement (TAVR) in patients with renal failure on hemodialysis*. Poster presented at Research Scholars, Lehigh Valley Health Network, Allentown, PA.

This Poster is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact LibraryServices@lvhn.org.

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 rate².
- 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

Lit Review & Patient Selection

Chart Review

Analysis

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

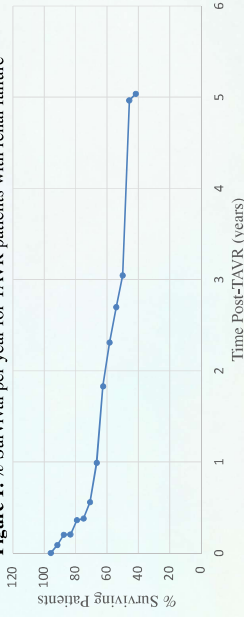
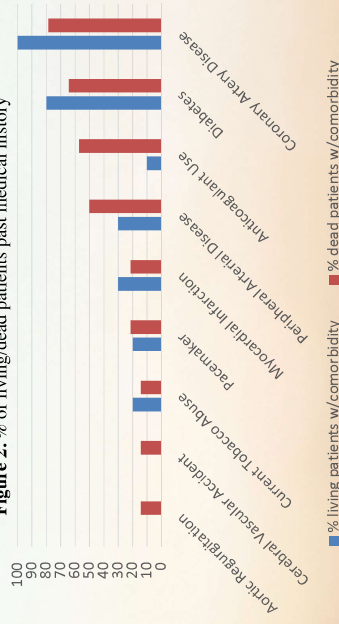


Figure 2. % of living/dead patients past medical history



Conclusion

- Patients on hemodialysis experienced a lower 3-year post-TAVR survival compared to those without, going from 67.1% survival¹ 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.

REFERENCES:

- Umukoro PE, Yeung-Lai-Wah P, Pathak S, Elkhalil S, Soodi D, Delgoffe B, Berg R, Anderson KP, Garcia-Montilla RJ. Three-Year Survival after Transcatheter Aortic Valve Replacement: Findings from the Marshfield Aortic Valve Experience (MAVE) Study. *Clin Med Res.* 2021 Mar;19(1):10-18. doi: 10.3121/cm.2020.1538. Epub 2020 Oct 14. PMID: 33060110; PMCID: PMC7987094.
- Lewandowski TJ, Amstrong WF, Bolding SF, Bach DS. Calcification and degeneration following mitral valve reconstruction in patients requiring chronic dialysis. *J Heart Valve Dis.* 2000 May;9(3):364-8. PMID: 10888092.
- Dale M, Kobrin, Fenion H, McCarthy, Howard C, Herrmann, Saif Anwaruddin, Sidney Kobrin, Wilson Y, Szele, Joseph E, Bavaria, Peter W, Groeneveld, Nimesh D, DiSalvi. Transcatheter and Surgical Aortic Valve Replacement in Dialysis Patients: A Propensity-Matched Comparison. *The Annals of Thoracic Surgery.* Volume 100, Issue 4, 2015, Pages 1230-1237. ISSN 0063-4975; https://doi.org/10.1016/j.athoracsur.2015.05.038.