Creatinine Trends in Transcatheter Aortic Valve Replacement Patients.

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Creatinine Trends in Transcatheter Aortic Valve Replacement Patients

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INTRODUCTION

- Omnipaque contrast dye is used for visualization in patients undergoing transcatheter aortic valve replacement (TAVR)
- Dye may impinge on the patient's kidney health
- A previous study reported a wide range of 15% to 57% of the TAVR patients developed acute kidney injury after the TAVR procedure[1]

OBJECTIVE

- This study seeks to assess the creatinine level of patients over time and analyze the effects of the TAVR procedure on kidney function

METHODS

Classified
- This was a retrospective single-center observational study
- Included 356 patients with severe aortic stenosis who underwent the TAVR procedure between January 2015 – June 2017 at Lehigh Valley Health Network

Reviewed
- Electronic medical records were used to assess patient creatinine levels before and after surgery and record the amount of contrast dye used in the TAVR procedure

Analyzed
- Descriptive statistics were used to evaluate the relationship between kidney function and the TAVR procedure

OUTCOMES

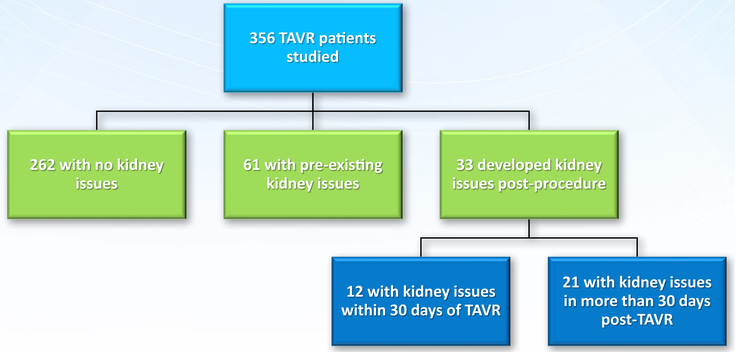

Figure 1: Flowchart Categorizing Kidney Issues in TAVR Patients.

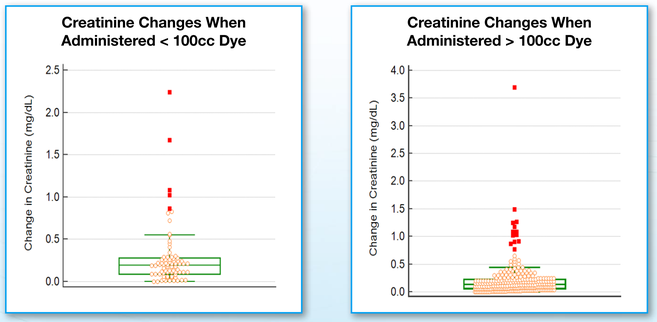

Figure 2: Box Plot of Changes in Creatinine Levels Based on the Concentration of Contrast Dye Administered.

The box plots sh ow the absolute value changes in creatinine levels from the pre-TAVR workup to the 2 days post-TAVR labs.

RESULTS

- Patients with pre-existing kidney issues:
  - there was no statistical significance showing the patients who were given more dye had greater changes in pre to post procedural creatinine levels (p=0.5732).
- Patients with no pre-existing kidney issues:
  - there was no statistical significance showing that patients who were given more dye were more likely to develop a kidney disease post-TAVR (p=0.3190).
- Patients who developed a kidney issue:
  - there was no statistical significance showing the patients who were given more dye were more likely to develop a kidney disease within 30 days of the TAVR procedure (p=0.8122).

CONCLUSIONS

- This was a negative study, revealing no statistical significance that Ominpaque contrast dye injections correlate to post-TAVR kidney issues
- Although there is always some risk that patients develop chronic kidney disease or acute kidney injury from the procedure, the results suggest that the cardiac team should not deny patients as TAVR candidates because of the possible complications from using contrast dye
- Further research is recommended to assess the effects of other contrast dyes on kidney function and to extend the study to other tertiary hospitals.

References:

1. Cheungpasitporn, W., Thongprayoon, C., & Kashani, K. (2016). Transcatheter Aortic Valve Replacement: a Kidney's Perspective. J*ournal of Renal Injury Prevention,* 5(1), 1–7.