EFFECT OF A NEW ENHANCED FLUOROSCOPY TECHNOLOGY (VALVE ASSIST 2) ON OUTCOMES IN PATIENTS UNDERGOING TRANS-CATHETER AORTIC VALVULAR REPLACEMENT

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PROBLEM
- Trans-catheter aortic valve replacement (TAVR) is the treatment of choice for high risk aortic stenosis (AS).
- An increased exposure to contrast, may increase risk for contrast-induced nephropathy (CIN).

BACKGROUND
- GE Health has developed a new Fluoroscopy technology called Valve Assist 2 (VA2).
  - VA2 uses fusion imaging, merging data from preoperative CT Angiogram with live fluoroscopy (Figure 1).
  - VA2 enhances visualization of aortic valve calcification.
- An initial review of patients undergoing TAVR using the VA2 technology showed a decrease in the amount of contrast needed to complete the procedures.
- Post-TAVR para-valvular leak (PVL) still remains a hurdle that can lead to an increased mortality.

OBJECTIVES
- To determine if:
  - VA2 technique is associated with a decrease in volume of contrast media.
  - Radiation dose and fluoroscopy time in patients undergoing TAVR.
  - A reduced amount of contrast use translate into a decrease in the rate of CIN.
  - In patients undergoing TAVR using VA2, is there an increase in the rate of PVL.

METHODS
- Patients who had undergone valve-in-valve, transapical approach or who had end stage kidney disease and were on dialysis were excluded.
- Chi-square testing and independent T tests were used to compare categorical and interval data.
- ANCOVA was used to determine statistical difference for the amount of contrast use between groups adjusting for sex, age, history of coronary artery disease, chronic kidney disease and valvular disease.
- CIN was defined as an absolute increase in baseline serum creatinine by 0.5 mg/dL.

RESULTS
- Baseline characteristics are in Table 1.
- There was a statistically significant difference in the amount of contrast, radiation dose and fluoroscopy time between VA2 group vs. the control group with p < 0.05 (Figure 2).
- Using ANCOVA after adjusting for covariates, there remained a statistically significant difference in the amount of contrast used with F = 6.938 and p = 0.001.
- There was no significant difference in the incidence of CIN (0.8% vs. 3.3%) (Figure 3) or PVL (5.6% vs. 7%) for VA2 versus control group.

CONCLUSIONS
- The VA2 technology was associated with significant reduction in the amount of contrast dye as well as radiation dose and time for fluoroscopy.
- Although there was no significant difference in the incidence of CIN between the groups, the trend favored a reduction of CIN in the VA2 group.
- No increase in PVL was noted using the newer VA2 technology.

REFERENCES