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