

Poster #: 2

**Title of Abstract:** THE TEN MINUTE TAVR CT- A GUIDE TO EFFICIENT AND EFFECTIVE INTERPRETATION OF PRE-PROCEDURE CTA USING AUTOMATED SOFTWARE

**Institution:** Mayo Clinic, Jacksonville FL

**Authors:** Christopher Coleman, M.D. Pragnesh Parikh, M.D. Patricia Mergo, M.D. Brian Shapiro, M.D.

**Modality:** CT

**Organ System:** CV

**Intro:** N/A

**Purpose:** N/A

**Methods Used:** N/A

**Results of Abstract:** N/A

**Abstract:**

**Discussion:** N/A

**Scientific and/or Clinical Significance?** Pre-procedure planning of Transcatheter Aortic Valve Replacement is important but often time-consuming. We demonstrate how the the use of computer software can simplify and expedite the process.

**Relationship to existing work** Use of CTA in pre-procedure planning has been described previously. We expand on this with a discussion and demonstration of software-assisted measurements.

**Purpose:** Transcatheter Aortic Valve Replacement (TAVR) is a new, minimally invasive alternative to open aortic valve repair which is gaining popularity. Appropriate patient selection and correct prosthesis sizing are crucial to minimize complication-related morbidity. Transesophageal Echocardiogram used to be the gold standard for aortic measurements and prosthesis sizing. CT has been shown to more accurately assess aortic annulus size, especially in patients with more ovoid annulus morphologies. Manual measurement using multiplanar reconstruction is possible, but cumbersome. We demonstrate the use of software to facilitate efficient, accurate measurements for pre-procedure planning. Content Organization: We begin with a brief introduction and current concepts in TAVR. We will then compare CT and TEE for planning. The next section will be a discussion of CTA including EKG-gated acquisitions in systole and diastole for various vascular measurements. We will then demonstrate the use of computer software to make automated measurements using vessel centerlines and creating orthogonal planes to measure intraluminal diameter and cross sectional area from the aortic annulus to the femoral arteries. This is especially important in tortuous vessels. Finally we demonstrate the efficient construction of a report which serves to guide the operator before and during the TAVR. Major Teaching Points: 1. Pre-procedure planning is vital to the success of TAVR. 2. CTA is generally considered to be superior to TEE because of its ability to evaluate the entire aortofemoroiliac arterial system, which is often tortuous in the target population. CTA also more accurately measures the ovoid aortic annulus. 3. Computer software can simplify and expedite the CTA planning for TAVR by using vessel centerlines to ensure orthogonal measurements. However, some manual manipulation is often required, during the aortic annulus measurement, as it is often not orthogonal to the left ventricular outflow tract.