Abstract

Transcatheter aortic valve replacement (TAVR) is becoming the gold standard when repairing

aortic stenosis compared to surgical aortic valve replacement (SAVR). Transcatheter aortic valve

replacement is minimally invasive. Aortic stenosis is the most common valvular disease in the

United States, commonly seen in the elderly population. In this project, multi-imaging modalities

are discussed when preparing a patient for TAVR such as computed tomography, left heart

catheterization, and transthoracic echocardiography. Each imaging modality has its own specialty

in the preprocedural planning of a valve replacement. Computed tomography uses 3D

reconstruction to determine the type of valve and size needed for the patient. Transthoracic

echocardiography evaluates the severity of aortic stenosis along with the morphologic

classification. Left heart catheterizations can determine the severity of aortic stenosis by

measuring pressure gradients between the aorta and left ventricle. Patients who undergo

transcatheter aortic valve replacement experience a better quality of life, and less major

complications when compared to surgical aortic valve replacement (SAVR).

Keywords: Transcatheter aortic valve replacement, aortic stenosis, multi-imaging
modalities, surgical aortic valve replacement