

The Additive Value of CT Prior to Transcatheter Aortic Valve Implantation (TAVI) Procedure

Goitein, Orly¹; Di Segni, Elio²; Konen, Eli¹; Eshet, Yael¹; Guetta, Victor²; Segev, Amit²; Hamdan, Ashraf²

¹Sheba Medical Center, Diagnostic Imaging, Tel Hashomer, Israel; ²Sheba Medical Center, Cardiology, Tel Hashomer, Israel

Background: Trans-catheter aortic valve implantation (TAVI) has been recently introduced as an alternative to conventional open heart surgery for selected patients with symptomatic severe aortic stenosis.

Purpose: To evaluate the additive value of CT performed prior to TAVI procedure.

Subjects and Methods: Forty one patients with severe aortic stenosis underwent 256-slice CT for assessment of the aortic annulus and peripheral vessels before TAVI. In 35 patients the scan volume ranged from the thoracic inlet to the level of mid-thigh region and in six patients the scan volume ranged from the carina to below the diaphragmatic face of the heart.

Results: According the results of the CT studies TAVI was not performed in 2 patients due to aortic annulus dilatation (>29 mm) and in another patient due to the presence of lung malignancy. Change from trans-femoral to trans-apical approach was decided in 7/41 patients because of severe peripheral vascular disease and vessel tortuosity ,avoiding vascular access, including aortic dissection. Major non-cardiac finding included (a) thoracic: pulmonary findings in 65% (27/41), out of which 2 were malignant, and mediastinal adenopathy in 21% (12/41); (b) abdominal: adrenal, renal, gastrointestinal and hepatic pathology in 17% (6/35), 40% (14/35), 40% (14/35), 20% (7/35), respectively; 8/35 (23%) required further investigation or treatment. Skeletal findings were demonstrated in 8/41 (19%), one patient was suspected for metastatic spread.

Conclusions: Pre TAVI gated CT can improve patient selection. Gated CT allows better per patient tailoring prior to the procedure, including accurate vascular access evaluation. Non vascular findings which are frequent in this patient population, should not be underestimated since major findings changing or canceling the procedure can occur.