

Title

Transaortic transcatheter aortic valve implantation (TAVI) using Edwards Sapien Valve: a novel approach for the “no access” patients.

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Objectives

We report a world first implantation of the Edwards SAPIEN THV valve using the trans-aortic approach. We present our series in patients who are unsuitable for conventional approaches and discuss the advantages and future application of this approach.

Methods

All patients were accepted for the TAVI procedure through the multidisciplinary team. Conventional approach i.e. Transfemoral (TF) or Transapical (TA) was either not possible or desirable and ascending aorta was deemed suitable for cannulation. Procedure was performed under GA guided by fluoroscopy and 3-D transoesophageal echo. Upper partial sternotomy was performed to access the ascending aorta. A non-calcified area on the ascending aorta was identified which would allow direction of the sheath in a straight line to deploy the device and leave enough room between the tip of the sheath and the aortic valve to allow device deployment. Pacing was achieved through transvenous route. Using Seldinger technique similar to TF approach but using Ascendra assembly valve implantation was performed. Care was taken to crimp the device in reverse manner to conventional TA approach. Sternum was closed with retrosternal drain and sternal wires/clips.

Results

5 patients, mean age 78.2(67-88) with mean Logistic Euroscore of 57.8%. All patients had critical stenosis with mean AVA 0.5cm², PG 60mmHg and LVEF 35%. Successful device implantation was achieved in all cases without any postoperative complications directly related to the approach. The median length of stay was 8 days. There were no early or late deaths.

Discussion

We have successfully used the trans-aortic approach in five patients deemed unsuitable for conventional approaches. TA approach is technically always feasible but not necessarily desirable in patients with severe chest deformity, poor lung function or previous pulmonary complications. Thoracotomy is associated with pain and risk of pleural effusion which can complicate recovery. The advantages of partial sternotomy are the avoidance of these complications and preservation of respiratory dynamics as the pleura remain closed. The only true contraindication for this approach will be porcelain aorta.