Spatial Wire Manipulation during Transcatheter Aortic Valve Implantation Improves CoreValve Position and Reduces Aortic Regurgitation

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Introduction:

Operators experience can significantly influence successfulness of TAVI procedure. We postulated if simple spatial wire manipulation can persuade better valve position and lower aortic regurgitation amount.

Methods:

During period of three years hundred and two patients with symptomatic severe aortic stenosis underwent CoreValve implantation. Position of stiff wire of loading system was measured relatively to the walls of ascending aorta using manual calibration of still frame of cine loop. The patients were divided in two groups according to position of wire. Closer to the lateral wall of ascending aorta was defined as leftward position and position closer to the medial wall of ascending aorta rightward wire position. In the same manner valve depth was measured. Patients were further divided into quartiles based on sequence (Q1, Q2, Q3 and Q4).

Results:

Median age of the patients was 80 years (interquartile range 58 to 91 years), median Logistic EuroScore 22, baseline echocardiographic mean aortic valve gradient of 45 mmHg and aortic valve area of 0.63 cm^2. Valve depth significantly changed during quartiles with lowest value 5.7 mm in Q4 compared to 8.8 mm in Q2, p0.01. Further on, lower average valve depth had significant correlation with new pacemaker implantation, r^2=0.35, p0.005. Lower valve depth difference was positively correlated with less aortic regurgitation, r^2=0.27, p0.05.

Conclusion:

Simple wire manipulation during TAVI procedure can significantly influence valve position with higher position associated with less need for new pacemaker implantation and symmetricity associated with less aortic regurgitation.