TCT-819

Effect of Transcatheter Aortic Valve Implantation on Plasma Brain Natriuretic Peptide Levels and Its Predictive Value for 30-day and 1-year survival

Karim El Chitali1, Thomas Komorza1, Fadi Al-Rashid2, Polykarpos Patalsky1, Bijorn Pitch1, Daniel Wendi1, Matthias Thielmann1, Heinz Jakob1, Raimund Erbel1, Philipp Kahler1
1West German Heart Center, Essen, Germany

Background: To determine the effect of transcatheter aortic valve implantation (TF-TAVI) on plasma BNP levels and to evaluate their predictive value for 30-day and one-year survival.

Methods: Baseline BNP, peak BNP within 48 hours after TAVI and predischarge BNP were obtained in 104 patients who underwent TF-TAVI with complete one-year follow-up.

Results: BNP was elevated at baseline (298.2, IQR 145.8, 661.6 pg/ml) and showed an acute increase after TF-TAVI (508.9, IQR 253.3, 806.8 pg/ml) followed by regression towards baseline levels prior to discharge (327.2, IQR 159.2, 634.6 pg/ml), p<0.001. Acute BNP increase (ΔBNPpeak-baseline) is significantly higher in 30 days non-survivors (277.1 IQR 252.1, 810.9 pg/ml) than in survivors (132.8 IQR –10.1, 301 pg/ml), p=0.028, and is found to be independent predictor of 30 days survival. Kaplan-Meier (KM) survival analysis showed a reduced 30 days survival in patients with a ΔBNPpeak-baseline ≥ 248.9 pg/ml, p=0.002. For 1-year survival, predischarge BNP level (250.8, IQR 152.9, 621.8 pg/ml) in survivors vs. 591, IQR 354.5, 788 pg/ml in non-survivors, p=0.003) and ΔBNPdischarge-baseline (211.8 IQR – 521.5, – 91.1 pg/ml in survivors vs. 108.4 IQR 12.2, 272.6 pg/ml in non-survivors, p=0.002) are independent predictors. KM analysis showed that 1-year survival is significantly lower in patients with a predischarge BNP ≥327.2 and a ΔBNPdischarge-baseline ≥ 38.3 than in those not fulfilling both criteria, p<0.001.

Conclusions: BNP levels are elevated in patients with severe, symptomatic aortic stenosis presenting for TF-TAVI. They further increase acutely after procedure and regress to baseline levels, usually prior to hospital-discharge. Acute, postprocedural BNP increase is an independent predictor of reduced 30 days survival, while reduced 1-year survival is predicted by higher predischarge BNP levels and failure of BNP to decline at discharge below baseline BNP level.

TCT-820

Transcatheter Aortic Valve Implantation (TAVI) In Patients Unsuitable For A Transfemoral Approach: A Comparison Between Trans-apical and Trans-Axillary Approaches

Jason Leung Kwai Chan1, Raymond Cartier1, Xavier Freixa1, Ragul Ibrahim1, Reda Ibrahim1, Yoan Larmarche1, Philippe Demers1, Raoul Benoit1, Anita Asgar1
1Montreal Heart Institute, Montreal, QC

Background: Transcatheter aortic valve implantation (TAVI) is an accepted alternative in high-risk or inoperable patients with severe, symptomatic aortic stenosis. The trans-femoral (TF) approach is most widely used however is limited in those with peripheral vascular disease. The trans-apical (TA) and trans-axillary (TAx) approaches have been described for such patients with limited data on outcomes. This study reports our single center experience with both approaches and compares patient outcomes.

Methods: A retrospective study of patients undergoing TAVI from January 2010 to December 2011. Procedural and clinical outcomes were defined according to the VARC definitions.

Results: During the study period, 126 patients underwent TAVI at our hospital; 70 (55%) patients were done by TF, 41 (33%) by TA and 15 (12%) by the TAx. Indications for TAx or TA approach for TAVI in our institution were as follows: PVD in 34 patients (61%), suboptimal size of femoral arteries (arterial diameter <6 mm) in 23 (41%), AAA in 14 (25%), morbid obesity in 8 (14%). Procedural success, defined as implantation of the device with a reduction in aortic valve gradient and without the need for conversion to open heart surgery, was 93% (114/121) in TAx and 88% (36/41) in TA (p=1.00). In TAx group, two patients required retrieval of the devices and subsequent successful implantation of another valve with the same approach. Valve embolization occurred in three TA cases requiring conversion to conventional AVR.

Table 1: Baseline Characteristics, and Outcomes of TAVI Patients (TAX and TA)

<table>
<thead>
<tr>
<th>Baseline Characteristics</th>
<th>TAX N (%)</th>
<th>TA N (%)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years), mean +/- SD</td>
<td>81 +/- 7.92</td>
<td>80 +/- 5.99</td>
<td>0.68</td>
</tr>
<tr>
<td>Male</td>
<td>13 (87)</td>
<td>22 (54)</td>
<td>0.03</td>
</tr>
<tr>
<td>Diabetes</td>
<td>6 (40)</td>
<td>16 (39)</td>
<td>0.95</td>
</tr>
<tr>
<td>Morbid obesity, BMI &gt;= 35</td>
<td>2 (13)</td>
<td>6 (15)</td>
<td>1.00</td>
</tr>
<tr>
<td>Peripheral vascular disease</td>
<td>8 (53)</td>
<td>27 (66)</td>
<td>0.39</td>
</tr>
<tr>
<td>Abdominal aortic aneurysm</td>
<td>6 (40)</td>
<td>8 (20)</td>
<td>0.12</td>
</tr>
<tr>
<td>Diameter of femoral arteries &lt;= 6mm</td>
<td>6 (40)</td>
<td>17 (41)</td>
<td>0.92</td>
</tr>
<tr>
<td>Previous stroke/TIA</td>
<td>2 (13)</td>
<td>4 (10)</td>
<td>0.70</td>
</tr>
<tr>
<td>NYHA functional class II-IV</td>
<td>13 (87)</td>
<td>37 (90)</td>
<td>0.65</td>
</tr>
</tbody>
</table>

Outcomes

Successful procedure | 14 (93) | 36 (88) | 1.00 |
In-hospital all-cause mortality | 0 (0) | 2 (5) | 1.00 |
30-day all-cause mortality | 0 (0) | 5 (12) | 0.31 |
Stroke/TIA | 0 (0) | 0 (0) |
Minor bleeding complication | 3 (20) | 7 (17) | 1.00 |
Major bleeding complication | 1 (7) | 7 (17) | 0.43 |
Life-Threatening or disabling bleeding | 0 (0) | 5 (12) | 0.31 |
Minor vascular complication | 1 (7) | 1 (2) | 0.47 |
Major vascular complication | 0 (0) | 1 (2) | 1.00 |

Conclusions: In this single center series the trans-apical approach was associated with a trend towards higher procedural success, lower all-cause mortality and fewer bleeding complications than the trans-apical approach in patients with severe aortic stenosis. Larger randomized controlled trials will be required to determine the true superiority of one access site over the other.

TCT-821

Initial Experience With Transfemoral Implantation of the Prosthesis Edwards Sapien XT Without Previous Valvuloplasty in Patients with Severe Aortic Stenosis

Eulogio Garcia1, Patricia Martin1, Rosa Ana Hernandez1, Carlos Ramon Rodas1, Jorge Enrique Sandoval Berrocal1, Ana Cuadrado1, Carlos Almeria1, Carlos Macaya1
1Clinico San Carlos Hospital, Madrid, Spain

Background: Balloon valvuloplasty (BV) before transcatheter aortic implantation of the prosthesis has been considered a mandatory step before valve implantation. However, BV has been associated with complications such as atriocventricular block, aortic insufficiency and stroke. We report 10 patients with severe aortic stenosis in whom direct transfemoral implantation of the SAPIEN XT was performed.

Methods: From November 2011 to April 2012, 10 patients (33% of patients treated with Edwards SAPIEN XT in that period were selected that met the following criteria: moderate calcification, homogeneous distribution of calcium, symmetrical opening of the valve and some degree of aortic insufficiency. The valve positioning was guided by TEE in all cases.

Results: All patients had symptomatic aortic stenosis of a native valve and high risk surgical, echocardiographic characteristics were: aortic annulus diameter ranged from 17 to 24 mm (determined by TEE). Six patients had the valve mildly calcified, in four patients the degree of calcification was moderate. All patients had symmetric opening of the stenotic aortic valve. Mild aortic regurgitation was present in seven patients, moderate in two and trivial in one. The native valve was crossed and the prosthetic aortic valve was properly positioned in all cases and implanted in the correct position in all cases. No patient underwent post-dilatation and only 1 patient had a mild periprosthetic regurgitation. There were no adverse events (death, need for pacemaker, myocardial infarction or stroke). At 30 days postprocedure all patients had significant clinical improvement.

Conclusions: Direct implantation of Edwards SAPIEN XT without prior balloon valvuloplasty in selected cases is feasible and safe. The number of patients in whom this technique is applicable and their impact on reducing complications has to be determined.