TCT-764

ECCENTRICITY OF THE AORTIC ANNULUS IS NOT ASSOCIATED WITH FUNCTIONAL IMPAIRMENT OF THE TRANSAPICAL JENAVALE IN AN IN VITRO HYDRODYNAMIC TEST MODEL

Stephan Ensminger1, Stephan Achenbach2, Jochen Boergermann3, Jan Gunnert4, Smita R. Jategaonkar5, Maximilian Kuetting6, Amnita Schuhbaeck2, Ulrich Steinsief6, Martin Unger2

1Heart and Diabetes Center NRW, Ruhr University Bochum, Bad Oeynhausen, Germany, 2University of Erlangen, Erlangen, Germany, 3Heart and Diabetes Center NRW, Bad Oeynhausen, Germany, 4Institute of Applied Medical Engineering, Aachen, NRW, 5Friedrich-Alexander University of Erlangen-Nürnberg, Erlangen, Germany, 6Inst. forApplied Medical Engineering, RWTH Aachen University, Aachen, NRW

Background: CT analyses of patients with severe aortic stenosis reveal that in the majority of patients, the aortic annulus is not circular, but displays a certain degree of eccentricity. All currently available percutaneous heart valve prostheses are circular in shape. The aim of this study was to assess the performance of the transapical JenaValve® in an in vitro hydrodynamic test comparing circular and eccentric annular annuli.

Methods: Based on CT data from 123 TAVI patients, a mean annulus eccentricity (eccentricity=short diameter/long diameter) of 0.84 was determined. Two models of aortic roots with valve leaflets, one circular in shape and one displaying an eccentricity of 0.84 were created based on the Reul model. The models for the circular and eccentric models were water-filled, postural chambers and simulated the heart rate in the aortic valve root. The aortic root chamber was filled with a physiological fluid (water plus sodium bicarbonate buffer) and the specimen was connected to the flow control device. The heart rate was simulated by changing the duration of the diastole and systole. The mean aortic pressure was increased by a 50-mmHg increase in the mean aortic pressure. Aortic regurgitation was induced by adjusting the valve opening. The valve opening was adjusted to obtain a mean aortic pressure of 90 mmHg.

Results: The analysis was performed with a transapical JenaValve prosthesis implanted in a circular annulus (n=3) or an annulus with an 84% eccentricity (n=3). The eccentric model showed a significant increase in the total stroke volume (SV). An increase of 1.64 ccm corresponding to 14% of the total SV was seen in the oval annulus, representing only a small increase. The eccentric models showed similar results.

Conclusions: The eccentricity of the aortic annulus has a significant impact on the performance of the transapical JenaValve®. The flow and pressure results indicate that the eccentric annulus model performed better than the circular model. The eccentricity of the aortic annulus has a significant impact on the performance of the transapical JenaValve®.

TCT-765

Atrial Fibrillation, Stroke and Mortality in TAVI

Lior Yankelson1, Aric Steinvil1, Shmulu Banai1, Gad Keren1, Liron Gershovitz1, Ariel Finkelstein1

1Tel-Aviv Medical Center and Tel Aviv University, Tel Aviv, Israel, 2Tel-Aviv Sourasky Medical Center, Tel Aviv, 3Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

Background: Transcatheter Aortic Valve Implantation (TAVI) has become an acceptable approach for patients with severe symptomatic aortic stenosis (AS) and high operative risk. This approach may be hampered by high occurrence of stroke during and after the procedure. The association with atrial fibrillation (AF) and the risk of stroke is not well documented. The objective of the present report was to evaluate the effect of pre-procedural and new onset atrial fibrillation (NOAF) on mortality and stroke outcomes in patients undergoing TAVI.

Methods: We analyzed the data on 380 consecutive elective patients undergoing TAVI between September 2008 and April 2013 in our interventional cardiology department. All-cause mortality, stroke and procedure-related complications were assessed. Stroke was defined as the occurrence of a focal neurological deficit or death occurring within 24 h after the onset of symptoms. Procedure-related complications included bleeding, valve-related complications, and urgent or periprocedural procedural-related mortality. The patients were divided into two groups: AF patients and patients without AF.

Results: The mean follow-up time was 583 and 528 days for the outcome of CVA and mortality, respectively. AF was present in 12.6% of the patients. The mean age was 83±7 years. The majority of patients received transapical TAVI (62.5%). The procedural success rate was 95.5%. The mean EuroSCORE was 12±2%. The mean hospital stay was 4±1 days. The mean follow-up time was 583 and 528 days for the outcome of CVA and mortality, respectively. AF was present in 12.6% of the patients. The mean age was 83±7 years. The majority of patients received transapical TAVI (62.5%). The procedural success rate was 95.5%. The mean EuroSCORE was 12±2%. The mean hospital stay was 4±1 days.

Conclusions: Our study showed that AF was associated with an increased risk of stroke and mortality. The risk of stroke was 3.5 times higher in AF patients compared to patients without AF. The risk of mortality was 1.9 times higher in AF patients compared to patients without AF. The risk of mortality was 1.9 times higher in AF patients compared to patients without AF. The risk of mortality was 1.9 times higher in AF patients compared to patients without AF.

TCT-766

The Anulus Dimension is Crucial to Achieved Good Results in Pure Severe Native Aortic Regurgitation Treated by Transcatheter Aortic Valve Implantation

Marco Luciano Rossi1, Paolo Pagnotta2, Cristina Barbaro2, Margherita Solda2, Patrizia Presbitero3

1Istituto Clinico Humanitas, Rozzano, Milano, Italy, 2Istituto Clinico Humanitas, Rozzano, Milano, Italy, 3Istituto Clinico Humanitas, IRCCS, Milano, Italy, 4Humanitas Institute, Milan, ID

Background: Transcatheter aortic valve replacement (TAVR) represent an "off label" option to treat pure severe native aortic regurgitation (SAR) in patients unsuitable for surgical aortic valve replacement due to their high surgical risk. We hereby report the 12 month follow-up of 12 cases of inoperable SAR treated in our Institute using Medtronic CoreValve prosthesis.

Methods: Aortic valve sizing was assessed on 3 dimensional CT scan and TEE considering perimeter, area, major and minor orthogonal annular diameter. In all cases an oversizing prostheses (20%) with respect of annular perimeter was used. Pre-dilation with balloon valvuloplasty was never performed. During valve deployment a rapid (180 bpm) pacing was used in order to prevent valve ejection. Twelve patients underwent TAVR with CoreValve prosthesis (mean age 83±7, mean L-Euroscore 31%; male 60%).

Results: In 9 patients a procedural success has been reached using a single valve (n. 3 CoreValve 26 mm; n. 3 CoreValve 29 mm, n. 3 CoreValve 31 mm. Mean annulus size 24±7 mm) without major complications (no peri-procedural stroke or major bleeding). A new permanent PM implantation was necessary in 3 pts. Post procedure aortic regurgitation grade < 1 was present in 8 patients. In one case a second valve deployment (CoreValve 29 mm in Core-Valve 31 mm) was necessary to reduce the peri-leak severe aortic regurgitation obtaining a final moderate grade of aortic regurgitation. In 2 cases conversion to emergency open surgery and aortic valve replacement was required due to residual severe aortic regurgitation despite a second valve deployment (valve-in-valve). In these patients the large native annulus dimension (mean perimeter of 93±2 mm; mean area of 831±3 mm2) did not permit to use an oversizing device and the CoreValve 31 mm was borderline. In all cases at 6- and 12-month follow-up we observed an improved functional capacity (NYHA class I-II post TAVR from NYHA IV pre TAVR was present in 9 patients). No death. One patient died 1 month after follow-up (one week after the procedure).

Conclusions: We hypothesized that some patients could be unsuitable for TAVR by CoreValve acceptable results can be achieved. On the contrary the large native annulus dimension should be considered a contraindication to TAVR in SAR cases.

TCT-767

Post TAVR hypertension is associated with favorable outcome

Haim Danenberg1, Dan Gilon1, Sasa Loncar2, Chaim Lotan3, Gidon Perlman4, David Planer5

1Hebrew University, Jerusalem, Jerusalem, Israel, 2Hadassah Medical Center, Jerusalem, Israel, 3Hebrew University-Hadassah Medical School, Jerusalem, Israel, 4Hebrew University-Hadassah Medical Center, Jerusalem, Israel

Background: TAVI is an emerging therapy for aortic stenosis (AS) patients at high surgical risk. The acute hemodynamic sequelae of this procedure and their clinical relevance, however, are yet unclear.

Methods: We performed a prospective, single-center, registry study at a single AS center of consecutive patients who underwent TAVI between January 2012 and June 2015. All patients were divided according to their post-procedural BP response into two groups: increased BP and stable BP. Results: We compared the first 200 TAVR patients and 196 patients with stable BP. A new permanent PM implantation was necessary in 11 pts. Post procedure NOAF occurred in 11 patients. The mean age of the patients was 83±6 years. The mean EuroSCORE was 24±7%. The mean hospital stay was 3±1 days. The mean follow-up time was 583 and 528 days for the outcome of CVA and mortality, respectively.

Results: The mean follow-up time was 583 and 528 days for the outcome of CVA and mortality, respectively. The mean follow-up time was 583 and 528 days for the outcome of CVA and mortality, respectively. The mean follow-up time was 583 and 528 days for the outcome of CVA and mortality, respectively. The mean follow-up time was 583 and 528 days for the outcome of CVA and mortality, respectively.

Conclusions: We hypothesized that some patients could be unsuitable for TAVR by CoreValve acceptable results can be achieved. On the contrary the large native annulus dimension should be considered a contraindication to TAVR in SAR cases.