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Electrophysiological evaluation of atrioventricular conduction disturbances in transcatheter aortic valve implantation with Edwards sapien prosthesis
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Purpose: Permanent pacemaker requirement is a known complication after transcatheter aortic valve implantation (TAVI). The aim of the present study was to analyze the effects of Edwards Sapien prosthesis implantation on atrioventricular conduction disturbances.

Methods: The study included 28 patients who underwent TAVI due to severe aortic valve stenosis. An electrophysiological study was performed in the catheterization room immediately before the initial balloon valvuloplasty and immediately after Edwards Sapien prosthesis implantation.

Results: HV interval was significantly prolonged after the procedure (55.9±11.5 ms) in comparison to before the procedure (47.3±7.8; p<0.001). The antegrade Wenkebach point was observed as being significantly chronic nodal, after the procedure (354.4±41.3) rather than before (337.7±45.4; p<0.001). Despite AH interval prolongation, it was not statistically significant. After the procedure, we observed significant conduction disturbances in three (10.7%) patients. These conduction problems recovered before discharge. One of the patients (3.6%) with RBBB+LAFB required permanent pacemaker implantation. At electrocardiogram after procedure QRS duration increased, QRS axis shifted to the left and both of the values became normal before discharge. The patients' echocardiographic and clinical parameters were improved during follow-up.

Conclusions: The effects of Edwards Sapien on the conduction system was mostly infranodal and temporary. The physical properties of the Edwards Sapien prosthesis may explain this observation. This complication may be lessened if the frame height characteristics can be improved.

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Is pre-TAVI EP study useful to predict risk of post-procedure pacemaker implantation?
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Introduction: Recent studies have shown that Transcatheter Aortic Valve Implantation (TAVI) can induce severe conduction disorders. However, the usefulness and the time of electrophysiology (EP) study is still unclear.

Methods: This single-center prospective study took place from December 2010 to Mai 2012 and included 81 patients. An ECG was realized before, immediately after and 24 hours after the procedure along with the registry of the electric modifications during the procedure. EP study was realized before and/or after TAVI. A follow up at one month with an ECG and clinical advents has been realized.

Results: Out of the 81 patients, 74% were implanted with an Edwards valve and 26% with a Corevalve. The pacemaker implantation rate was respectively 16% and 35% (p=0.03). 30% of them underwent an EP study before and/or after TAVI.

Conclusions: Some clinical and EP factors seem to be identified as risk factors for the implantation of a pacemaker post TAVI, such as male gender, a pre-TAVI wide QRS particularly RBBB, a prolonged PR interval, a larger valve diameter and the use of a Corevalve. QRS width combined to a pre-TAVI EP study appears to predict the risk of pacemaker implantation. However, these results need to be confirmed by larger studies.

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Clopidegrel fails to provide adequate biological efficiency before TAVI procedure
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Introduction: Aspirin and clopidogrel are recommended in the context of TAVI (Transcatheter Aortic Valve Implantation). However, there is poor clinical and no biological data assessing the efficiency of such antiplatelet therapy in the TAVI low risk population. Finally, the best regimen of antiplatelet therapy, particularly regarding the loading dose (LD) of clopidogrel, remains to be defined.

Aim of the study: We hypothesize that the recommended 300mg clopidogrel LD is unable to provide efficient P2Y12 inhibition for TAVI procedure. During a first period we check our hypothesis, and during a second period, we test a stronger and biologically adjusted clopidogrel regimen.

Materials and methods: We prospectively studied platelet reactivity before TAVI procedure, using P2Y12 VerifyNow® assay. High platelet reactivity was defined by PRU value above 230. Patients already treated with P2Y12 inhibitors were excluded. In the first period, a 300mg Clopidogrel LD was administered the day before TAVI procedure (day-1) and platelet reactivity was assessed the following morning (day0). During the second period, we used a 600mg clopidogrel LD, two years before TAVI (day-2). At day-1, patients with a PRU > 230 received a second 300mg clopidogrel LD. At day0, patients who remained low-responder received a third loading dose of 300mg.

Results: In the first period, 23 patients were tested 14±2 hours after LD. The mean PRU value was 253±73 at day0. High platelet reactivity was still present in 16 patients with a mean PRU value at 294±40 and only 7 patients (30.4%) were good responder with a mean PRU value at 160±35 at day0. In the second period, 15 patients were pretreated with high clopidogrel LD at day-2. The mean PRU value at day-1 was 256±47 and 6 patients (40%) reached the cut-off of efficiency at day-1. Among the 9 non-responder patients only 4 reached the cut-off of efficiency after 900mg, and finally 10 patients (67%) had a PRU>230 at day0. Among the 5 remaining patients, one was not implanted. At the end, after 1200mg, only one of the remaining patients reached the cut-off of efficiency the day after TAVI. Finally, this second regimen provided a higher biological efficiency with 11 good responder patients (79%), but with a mean total loading dose of 880mg of clopidogrel.

Conclusion: Recommended loading dose of 300mg of clopidogrel the day before the procedure fails to provide biological efficiency for TAVI procedure. Better results can be obtained but with a huge increase in the clopidogrel doses. Further studies are required to assess the clinical consequences of these biological data.

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Long-term performance of a transfemorally implantable nonmetallic, retrievable and repositionable aortic valve in patients with severe aortic stenosis 4 year follow-up of the 2ZF-direct flow medical
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Background: The Direct Flow Medical (DFM) valve is repositionable and retrievable. The non metallic inflatabl and conformable design of the valve results in better sealing but in less radial force which may have an impact on stability and valve function over time.

Aim of the study: To evaluate the 4-year clinical and echocardiographic outcome of the first generation 2ZF-DFM percutaneous aortic valve.

Methods and results: From 2007 to 2008 31 symptomatic high-risk for surgery patients (mean age 82±4y) with severe aortic stenosis and a mean logistic EuroSCORE of 29±7% were the subject of this analysis. Clinical, echocardiographic and hemodynamic follow-up were obtained during 4 years. Survival rates were 81%, 69%, 60%, and 54% at 1,2,3,4 years, respectively. At 4 years follow-up, 80% of the patients had no aortic regurgitation, 20% had trace aortic regurgitation.

Conclusions: In this preliminary series, the first generation of the nonmetallic, non-inflatable and retrievable 2ZF-DFM valve was associated with acceptable clinical outcome and stable hemodynamic performance with no aortic regurgitation in the majority of patients.

P5408 | BEDSIDE
Impact of global LV longitudinal strain on outcomes of high risk patients undergoing transcatheter aortic valve implantation
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Purpose: Transcatheter aortic valve implantation (TAVI) provides an alternative for high risk or inoperable patients with symptomatic severe aortic stenosis (AS),