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Echocardiographic predictive factors of short-term poor outcomes after transcatheter aortic valve implantation

Vincent Auffret (1), Erwan Donal (2), Marc Bedossa (1), Dominique Boulmier (1), Marcel Laurent (1), Jean-Philippe Verhoye (1), Herve Le Breton (1)
(1) CHU de Rennes – Hôpital Pontchaillou, Centre cardio-pneumologique, Rennes Cedex 09, France – (2) CHU Rennes, département de cardiologie, Rennes, France

Background: Patients' selection for TAVI remains a major concern given the large amount of patients who do not improve after this procedure.

Methods: 99 consecutive patients undergoing TAVI at the university hospital of Rennes were included in a registry and prospectively followed at 6-month. The study population was divided into two groups: "good outcomes" (GO) vs "bad outcomes" (BO), according to the occurrence of death from any cause, acute heart failure (AHF) or coronary syndrome (ACS), stroke and 6-month NYHA functional class (Class I/II vs III/IV). The patients' clinical, biological and echocardiographic characteristics were studied to find predictive factors of BO.

Results: Forty patients met the criteria of the BO group. The mean (± SD) age of the GO and BO groups was 77.8 (11.6) and 81.5 (5.5) years respectively (p=.06). Patients in the BO group had a higher Society of Thoracic Surgeon Score (p=.016), had more history of chronic obstructive/restrictive pulmonary disease (p=.03), of atrial fibrillation (p=.004) and less history of thoracic radiotherapy (p=.03). Univariate analysis identified the following pre operative echocardiographic criteria as being linked to BO: left atrial area (LAA) on 4 chamber apical view (p=.0016), mitral and tricuspid regurgitation ≥ grade 2 (p=.008 and.001 respectively) and a sytolic pulmonary arterial pressure ≥60 mm Hg (p=.02). In a multivariate model combining these features, LAA remained the sole PF of BO (p=.039, relative risk (95% confidence interval) = 1.1[1.004-1.169])

Conclusion: Our results suggest that a careful assessment of diastolic function is useful when evaluating a patient for TAVI and should be taken into account in patients' selection.

Table –

Characteristics of the patients	GO N=59	BO N=40	p value
Society of Thoracic Surgeon Score	5.9±3.1	7.5±3.2	0.016
NYHA class-no. (% of total no.)		4 (10.0)	0.03
I or II	15 (25.4)	36 (90.0)	0.004
III or IV	44 (74.6)	2 (5.0)	0.9
Thoracic radiotherapy-no. (% of total no.)	12 (20.3)	23 (57.5)	0.002
Baseline NT pro-BNP-pg/mL	4442.9±4829.9	5338.8±4850.2	
6 months – NT pro-BNP-pg/mL	1349.4±1276.0	3937.3±5761.5	
ECHO Baseline			
LV EF%	48.2±15.1	51.2±13.3	0.31
Aortic valve area-cm^2	0.66±0.15	0.71±0.17	0.15
Mean aortic valve gradient-mm Hg	50.3±16.2	46.0±12.7	0.16
Mitral valve regurgitation ≥ grade 2-no. (% of total no.)	18 (30.5)	23 (57.5)	0.0075
Left atrial area-cm^2	25.9±7.0	30.6±6.1	0.0016
Tricuspid valve regurgitation ≥ grade 2-no. (% of total no.)	7 (11.9)	16 (40.0)	0.001
6 months follow-up			
LV-EF%	54.4±10.2	53.6±10.3	0.75
Aortic valve area-cm^2	1.82±0.5	1.92±0.75	0.48
Systolic pulmonary arterial pressure > Hg-no. (% of total no.)	3 (5.3)	5 ± (19.2)	0.046

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Transcatheter aortic valve implantation in patients with Hodgkin's lymphoma

Aziza Touati, David Messika-Zeitoun
Hôpital Bichat, cardiologie, Paris, France

Objectives: Transcatheter aortic valve implantation (TAVI) has emerged as a valuable alternative to surgical aortic valve replacement with promising results for patients with severe aortic stenosis (AS) considered as being at high or prohibitive surgical risk. Results in the high-risk subgroup of patients with post-radiation AS was unknown.

Methods: From October 2006 to June 2011, among the 272 patients who underwent a TAVI at our institution, 12 had post-radiation AS due to Hodgkin's lymphoma and 260 had degenerative AS. Complications were assessed according to VARC definitions.

Results: Post-radiation AS patients were younger (61±11 vs. 83±7 years, p<0.0001), had a lower Euroscore were (9±9% vs. 25±13%, p=0.0003) but presented more frequently with porcelain aorta (60% vs. 13%, p<0.0001). TAVI results and complications are presented in the Table. In the post-radiation AS, mortality rate was not significantly different (one death due to a severe sepsis) but there was less complications especially a lower rate of major vascular complications, hospital duration was shorter and patients more frequently discharged at home.

Conclusions: Among AS patients who underwent a TAVI, post-radiation patients experienced a lower rate of complications than patients with degenerative AS. In regard to the high mortality and morbidity of conventional surgery, our results suggest that TAVI may be an elective indication for post-radiation AS patients but deserve further confirmation in larger series.

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Comparison of primary pacemaker implantations in the following transcatheter aortic valve implantation (TAVI) in the University Hospital of Clermont Ferrand, according to two types of valve

Charles Vorilhon (1), Géraud Souteyrand (1), Nicolas Durel (1), Andrea Innorta (2), Jean Paul Chadefaux (1), Jean René Lusson (1)
(1) CHU Gabriel Montpied, cardiologie et maladie vasculaire, Clermont Ferrand, France – (2) CHU Gabriel Montpied, chirurgie cardiaque et thoracique, Clermont Ferrand, France

Introduction: Aortic valve replacement is the definitive therapy for severe aortic stenosis (valve area<0.6cm²/m²). Elderly and the associated comorbidity represent an operative risk (estimated with the EuroSCORE). TAVI is an alternative to surgery or balloon valvuloplasty. Two valves were marketed: Edwards and CoreValve. The complications of TAVI are well known and similar for the both. Only the primary pacemaker implantations (PPI) are greater with CoreValves. The objectives are to compare the PPI after a TAVI in the CHU of Clermont Ferrand depending on the type of valve, then to explain this difference. **Method:** We used the register FRANCE II to a retrospective analysis of all patients with a TAVI in the CHU of Clermont Ferrand. We only excluded patients who died within 24 hours post procedure and patients who were already a pacemaker. The search for a PPI, age, type of valve, diameter of the valve, surgical approach, presence of bundle branch block (BB), operator dependence and learning curve were analyzed. **Results:** From January 2010 to March 2012, 78 were included in this study (66% of CoreValve and 34% of Edwards). Of the 22 PPI (22.9%), 100% complicated a Corevalve (p=0.00034). Age, operator, learning curve, surgical approach and diameter of the valve are not risk factors for PPI, in contrast to the presence of BB (p=0.025).

Conclusion: This study confirms that CoreValves are more complicated PPI than Edwards. The presence of BB is a risk factor for primary implantation. The lack of power of this study does not reveal other risk factors such as the diameter of the valve or the learning curve effect..