TCT-775

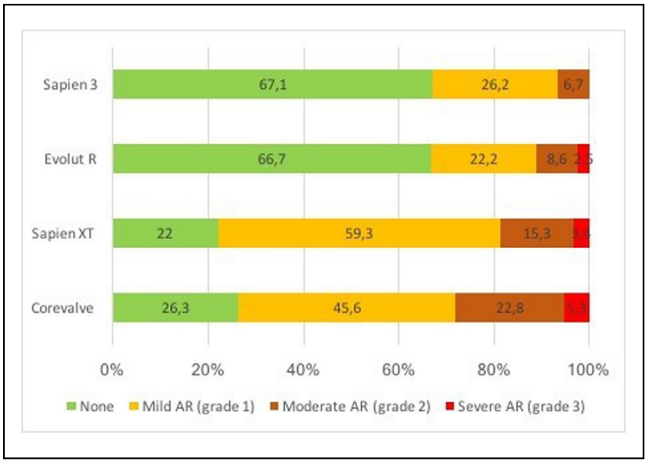
Prognostic value of calcium score before transcatheter aortic valve implantation performed with new generation prosthesis

Mariama Akodad,[1] Benoit Lattuca,[2] Audrey Agullo,[3] Gregory Marin,[4] Hélène Vernhet,[5] Laurent Schmutz,[6] Guillaume Cayla,[7] Florence Leclercq[8]
[1]Chu, Montpellier, France; [2]Caremeau, Nîmes, France; [3]Arnaud de Villeneuve, Montpellier, France; [4]Arnaud de Villeneuve Hospital, Montpellier, France; [5]Arnaud de Villeneuve hospital, Montpellier, France; [6]University Hospital Montpellier, CHU de Nîmes, Montpellier, France; [7]Department of Cardiology, CHU Nîmes, Université de Montpellier, Montpellier, France; [8]University hospital montpellier, Montpellier, France

BACKGROUND Calcium score (CS) is a recognized prognostic factor after TAVI performed with first-generation prosthesis but few data are available concerning new generation valves. Therefore, our aim was to determine if CS remains a prognostic factor after Sapien 3 and Evolut R valves implantation.

METHODS Agatston CS was evaluated on multislice computed tomography before TAVI in 346 patients implanted with Sapien XT (n=61), Corevalve (n=57) devices, (group 1, n=118), and with new generation Sapien 3 (n=147), Evolut R (n= 81) prosthesis, (group 2, n=228). Major adverse cardiovascular events and paravalvular leaks were evaluated at 1 -month.

RESULTS The 2 groups were similar at baseline except for logistic Euroscore (20.1% in group 1 vs 15.0 % in group 2; p=0.001), chronic renal failure (44.1% vs 37.2 % respectively, p=0.007) and pre-procedural CS (4092 ±2176 vs 3682 ±2109 respectively, p=0.022). In group 1, 28 patients (23.7%) had adverse clinical events vs 21 (9.2%) in group 2 (p<0.01). Aortic regurgitation was more frequent in patient implanted with the first generation devices (figure 1). In multivariate analysis, a higher CS was predictive of adverse events in group 1 (5785 ± 3285 vs 3565±1331 p<0.0001) but not in group 2 (p=0.28). A higher CS was associated with AR in group 1 (6234±2711 vs 3429±1505; p<0.001) and in patients implanted with an Evolut R device from group 2 (4085 ±3645 vs 2551 ±1356; p=0.01).



CONCLUSION CS appears as an important prognostic factor of major events after TAVI with first-generation valves but not with new generation devices. CS remains associated with AR only with new generation self-expandable Evolut R devices.

CATEGORIES STRUCTURAL: Valvular Disease: Aortic

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Final Results from the REPRISE I Study: Five-Year Clinical Outcomes with the Repositionable and Fully Retrievable Lotus Valve System

Robert Gooley,[1] Stephen G. Worthley,[2] Robert Whitbourn,[3] Joseph Montarello,[4] Andrew Newcomb,[5] Dominic Allocco,[6] Ian Meredith[7]
[1]MonashHeart, Monash Health, Melbourne, Victoria, Australia; [2]Genesis Healthcare, Sydney, Victoria, Australia; [3]St Vincent's Hospital Melbourne, south yarra, Victoria, Australia; [4]Royal Adelaide Hospital, Adelaide, South Australia, Australia; [5]St. Vincent's Hospital (Melbourne), Melbourne, Victoria, Australia; [6]Boston Scientific, Maple Grove, Minnesota, United States; [7]Boston Scientific Corporation, Marlboro, Massachusetts, United States

BACKGROUND The mechanically-expanded Lotus Valve is repositionable and fully retrievable, which facilitates controlled, precise positioning, resulting in minimal paravalvular aortic regurgitation. Here we report final 5 year outcomes from the REPRISE I feasibility study. This represents the longest available follow-up to date for patients treated with the Lotus Valve.

METHODS The prospective, single-arm REPRISE I study was a feasibility study that evaluated the use of the 23mm Lotus Valve for transcatheter aortic valve replacement (TAVR) in patients with symptomatic, severe calcific aortic valve stenosis at high risk for surgical intervention.

RESULTS The Lotus Valve was implanted in 11 patients (100% female; mean age, 83.0±3.6 years; mean STS score, 4.9%±2.5%). All (11/11) patients were successfully implanted with a Lotus Valve with no procedural mortality. The survival rate was 100% up to 2 years, 90.9% at 3 years, 72.7% at 4 years, and 63.6% at 5 years (4/11 patients died, including cardiovascular death in 1 patient). Five-year clinical follow-up was available for 6/7 (85.7%) surviving patients. The cumulative major stroke rate at 5 years was 9.1% (major stroke on day 3 in 1 patient). Conduction disturbance requiring new permanent pacemaker implantation remained at 4 patients. There were no repeat hospitalizations for valve-related symptoms or cardiac decompensation. Mean aortic gradient at 5 years was 14.1±4.1 mmHg (vs 53.9±20.9 mmHg at baseline, P<0.001; vs 13.7±3.7 mmHg at discharge, P=0.744). Mean effective aortic orifice area at 5 years was 1.6±0.4 cm2 (vs 0.7±0.2 cm2at baseline, P<0.001; vs 1.5±0.2 cm2 at discharge, P=0.835). Five years after TAVR, 4/6 patients (66.7%) were New York Heart Association (NYHA) Class I, 1 patient (16.7%) was NYHA Class II, and 1 patient (16.7%) was NYHA Class III. Paravalvular aortic regurgitation, as evaluated by an independent echocardiographic core laboratory, was absent or trace in all evaluable patients.

CONCLUSION Final 5-year data from the REPRISE I feasibility study demonstrate sustained hemodynamic performance and minimal paravalvular regurgitation.

CATEGORIES STRUCTURAL: Valvular Disease: Aortic

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Usefulness of Sinus of Valsalva diameter measurement for sizing the valve in transcatheter aortic valve replacement

Hector Crespo,[1] Roberto J. Cubeddu,[1] Gianina Flocco,[1] Andres Carmona,[1] Mark Rothenberg,[2] Lawrence Lovitz,[3] George Daniels,[4] Eric Heller,[5] Lance Lester,[6] Marcos Nores[7]
[1]Cleveland Clinic Florida, Weston, Florida, United States; [2]University of Miami School of Medicine/JFK Medical Center, Atlantis, Florida, United States; [3]University of Miami School of Medicine/JFK Medical Center, West Palm Beach, Florida, United States; [4]JFK, Atlantis, Florida, Florida, United States; [5]Seckler Heart Center, Boca Raton, Florida, United States; [6]JFK, Lake worth, Florida, United States; [7]JFK Medical Center, Wellington, Florida, United States

BACKGROUND Annular derived measurements from gated multislice computed tomography (MSCT) remains the clinical sizing guide for valve selection in TAVR. However, the use of this measurement alone is sometimes insufficient for appropriate valve sizing, and at times vulnerable to motion artifact. The technique requires the use of contrast, and is therefore problematic in those with nephropathy or severe contrast allergy. In this subset of patients, the use of an additional sizing guide may be beneficial.

METHODS A multicenter retrospective analysis was conducted in 536 consecutive patients who underwent TAVR with Edwards SAPIEN 3 between 2015 and 2017. Only patients with high quality contrast gated MSCT for determination of annular size were included in the study (n=329). The actual valve size implanted was considered the gold standard. Interquartile ranges for SoV mean diameter were obtained, and ROC curves were constructed for the old and new parameters and analyzed with logistic regression.