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Interventional Cardiology

News & Views

News

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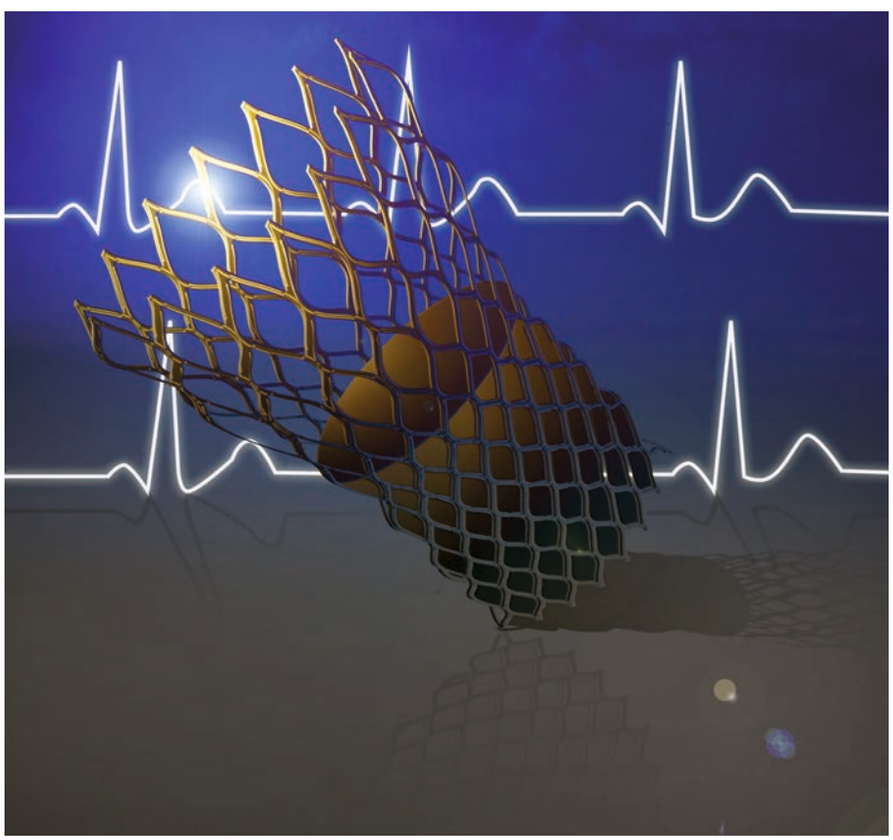
New-onset atrial fibrillation in patients undergoing transcatheter aortic valve implantation

A team led by Josep Rodés-Cabau of Laval University (QC, Canada), has examined the occurrence, predictive factors for and prognostic value of new-onset atrial fibrillation (NOAF) following transcatheter aortic valve implantation (TAVI). It has been suggested that NOAF occurs in almost a third of patients, often during the procedure or the first 24 h and is associated with an increased risk of stroke.

Cerebrovascular events constitute one of the most worrisome complications associated with TAVI, with an incidence of approximately 4%. Although an important number of cerebrovascular events occur during TAVI, approximately half of them occur several days after implantation, implicating mechanisms other than those directly related to the procedure. The team demonstrated that in patients with no prior atrial fibrillation (AF) undergoing TAVI, NOAF was a frequent complication, with half of the episodes occurring within 24 h and approximately 80% within the first 3 days following the procedure. Speaking to *Interventional Cardiology,* Rodés-Cabau noted that "NOAF was associated with a higher rate of cardioembolic events (such as stroke and systemic embolism) following the procedure, especially late (>24 h) events, and this provides important new insight into the mechanisms of cerebrovascular events following TAVI."



The team analyzed prospective data from 138 consecutive patients with no prior history of AF who underwent TAVI with a balloon-expandable Edwards Sapien or Sapien XT™ valve (Edwards Lifesciences, CA, USA). NOAF was observed in 44 patients at a median time of 48 h, and was defined as an episode of AF lasting 30 s or more. Of the occurring AF episodes, 22.7% resolved spontaneously, whilst others required pharmacological cardioversion. The team initiated anticoagulation therapy with intravenous heparin in 34 of the 44 patients who suffered AF. Rodés-Cabau commented that "Some cardioembolic events seemed to be related to the no initiation of anticoagulant therapy upon documentation of the AF episode, which further emphasizes the clinical relevance of optimizing antithrombotic treatment in this high-risk subset of patients."

Left atrial size and transapical approach were shown to be independent predictors of AF, with patients with an atrial size of 27 mm/m^2 or larger who underwent transapical TAVI demonstrating a 57% risk, compared with 12% for patients with neither factor. At 30 days, the occurrence

of stroke appeared higher in patients with NOAF, although mortality rates were similar. This trend remained unchanged after a 1-year follow-up.

"...NOAF was associated with a higher rate of cardioembolic events … following the procedure, especially late (>24 h) events, and this provides important new insight into the mechanisms of cerebrovascular events following TAVI."

Rodés-Cabau feels it is important to start anticoagulation in patients with AF immediately due to the high stroke risk. "The results of this study support further research to determine the optimal antithrombotic therapy following TAVI, particularly when atrial arrhythmias occur following the procedure," he noted to *Interventional Cardiology*. "Future studies will have to determine the potential usefulness of implementing preventive strategies to reduce the occurrence of NOAF (especially in patients with large atrial size undergoing TAVI by transapical approach) and its potentially devastating consequences in the setting of TAVI."

Written by Francesca Lake, Assistant Commissioning Editor.

Source: Amat-Santos IJ, Rodés-Cabau J, Urena M et al. *Incidence, predictive factors, and prognostic value of new-onset atrial fibrillation following transcatheter aortic valve implantation.* J. Am. Coll. Cardiol. *59(2) 178–188 (2011).*

Better clinical outcomes demonstrated for lower risk patients selected for transcatheter aortic valve replacement

A study performed by a research team at the German Heart Center (Munich, Germany) has examined the evolving trend towards selection of lower risk patients for transcatheter aortic valve replacement (TAVR). The single-center study demonstrated that clinical outcomes were significantly improved for lower risk patients undergoing TAVR.

"...if stroke incidence decreases to 1%, as it does in the most recent patients in this study, that compares favorably with surgery and makes TAVR a valid alternative."

The team performed the study based on the need to clarify the effect of the trend on the impact and outcomes of TAVR. The patients were divided into four quartiles (Q1 through to Q4) depending upon enrolment date and the relationship between quartile and mortality rate was analyzed. When unadjusted for baseline characteristics, the 30-day and 6-month mortality rates decreased significantly from Q1 to Q4. A significant decrease was not detected when adjusted. Baseline characteristics for 30-day mortality included, age, Society of Thoracic Surgeons (STS) predicted risk of mortality and stroke/transient ischemic attack. For 6-month mortality they included STS predicted risk of mortality, stroke/transient ischemic attack, previous aortic valve surgery and Log NT-proBNP.

Philippe Pibarot, from Laval University (QC, Canada), noted that "We expected that TAVR would be superior to surgery and provide the greatest benefit in high-risk patients but, with this paper, the observed mortality in the Q4 patients was actually lower than what was predicted by their STS scores, as opposed to what we've seen with higher risk patients. That's good news." He also commented on the finding that patients' stroke incidence was correlated with baseline risk, observing that "If stroke incidence decreases to 1%, as it does in the most recent patients in this study,

that compares favorably with surgery and makes TAVR a valid alternative."

"The evolution of TAVR toward [treatment of] intermediate and potentially lower risk patients is inevitable, the questions are how much time it will take and how to move appropriately," comments Pibarot, but he warns that before moving towards lower risk younger patients, more data are needed on the durability of percutaneous valves, which would avoid patients returning for repeat surgery. "We have to be careful about moving to younger patients, especially since surgery performs very well in this population."

Written by Francesca Lake, Assistant Commissioning Editor.

Source: Lange R, Bleiziffer S, Mazzitelli D et al. *Improvements in transcatheter aortic valve implantation outcomes in lower surgical risk patients: a glimpse into the future.* J. Am. Coll. Cardiol. *doi:10.1016/j.jacc.2011.10.868 (2011) (Epub ahead of print).*

Drug-eluting versus bare-metal stents for critical limb ischemia

Peripheral arterial disease is a significant problem affecting approximately 8 million people in the USA, most commonly affecting the legs and arms. Critical limb ischemia is the most severe form of peripheral arterial disease and may lead to amputation of the occluded arteries if left untreated. Interventions such as an increase in exercise, stopping smoking and more adequate control of blood pressure and diabetes are the first route of therapy to treat the disease. Drugs such as aspirin and other antiplatelets may be used, however, in severe cases, endovascular recanalization is used to reduce the occlusion. This technique has been shown to be effective in occluded arteries, however, restenosis may occur.

"These results show that the use of DES is more effective than BMS in the treatment of restenosis in peripheral arterial disease and reduces the need for reintervention."

Drug-eluting stents (DES) were originally developed for use in coronary artery disease. However, it was thought that they may be effective in preventing restenosis in infrapopliteal arterial occlusive lesions of the leg.

Marc Bosiers (AZ St Blasius Hospital, Dendermonde, Belgium) and colleagues investigated the use of DES compared with bare-metal stents (BMS) in preventing restenosis in peripheral arterial disease. In the DESTINY trial they specifically compared the MULTI-LINK VISION™ coronary stent system (Abbott Vascular, CA, USA), which was the world's first BMS, with the XIENCE® V everolimus-eluting stent (Abbott Vascular). A total of 140 patients were enroled in the trial at five European sites; the primary end-point was arterial patency at 12 months with the absence of at least 50% restenosis, which was measured by quantitative analysis of contrast angiography.

A total of 74 patients were treated with the XIANCE V DES and 66 patients with the MULTI-LINK VISION bare-metal system. After 12 months it was found that the XIANCE V DES was superior to the MULTI-LINK VISION BMS and had a primary patency rate of 85% compared with 54% with the MULTI-LINK VISION system. In-stent diameter stenosis and in-stent late lumen loss was significantly reduced with the XIANCE V DES compared with the BMS. These results show that the use of DES is more effective than BMS in the treatment of restenosis in peripheral arterial disease and reduces the need for reintervention.

Written by Claire Attwood, Assistant Commissioning Editor.

Source: Bosiers M, Scheinert D, Peeters P et al. *Randomized comparison of everolimus-eluting versus bare-metal stents in patients with critical limb ischemia and infrapopliteal arterial occlusive disease.* J. Vasc. Surg. *doi:10.1016/j.jvs.2011.07.099 (2011) (Epub ahead of print).*

First clinical procedure with MitraClip® performed in Canada

The first clinical procedure in Canada using the MitraClip system to treat mitral valve failure has been performed at the Montreal Heart Institute (MHI, QC, Canada). The MitraClip, designed by Abbott Vascular (Abbott Park, IL, USA), is intended to treat mitral valve failure, a common heart defect affecting approximately a fifth of those over the age of 55.

"The MitraClip system, intended as a long-lasting treatment, was designed for the treatment of high-risk inoperable patients."

The MitraClip system has been adapted from the open surgical double-orifice technique, and is intended to treat mitral regurgitation, reducing the symptoms of heart failure and improving quality of life. The catheter-based therapy, which is attached to the mitral valve, is moved using a guide catheter via the femoral vein into the left atrium and subsequently into the ventricle. It then creates a double-orifice opening, allowing blood flow on both sides.

Until this point, medication or open-heart surgery have remained the expected treatment for this defect, depending upon its severity. The MitraClip system, intended as a long-lasting treatment, was designed for the treatment of high-risk inoperable patients. Compared with traditional surgery, its risk of complications is low, and the time-to-discharge short, estimated to be within 48 h of the procedure.

Anita Asgar, a member of the team of cardiologists who performed the procedure, notes that "All initial cases went well, and we believe that the long-term outcomes for this procedure will be favorable. Since it allows patients to regain autonomy and quality of life, we believe that this treatment will reduce the number of hospital admissions and visits to emergency due to symptom reoccurrence."

Written by Francesca Lake, Assistant Commissioning Editor.

Source: Montreal Heart Institute news release: a Canadian first at the Montreal Heart Institute. A simple clip could increase quality of life for thousands of patients with a common heart problem: www.icm-mhi.org/files//pdf/communique-en-2011/42_mhi_press_release_mitraclip.pdf (Accessed 06/01/2012)