AN INTERVIEW WITH...

Didier Tchétché, MD

Dr. Tchétché discusses what is on the horizon for valvular disease intervention, new features at his clinic in France, and how he prepares for live case presentations.

Are you currently participating in any clinical trials? Can you tell us about their current status and how you hope they will contribute to the greater body of data?

Structural heart disease (SHD) is a very fast-moving field, particularly regarding the valvular arena. Several trials are ongoing at our institution, and we very much look forward to helping to shape the future of our specialty. Concerning the aortic valve, we are part of a large randomized multicenter study exploring the outcomes in low-risk aortic stenosis patients undergoing transcatheter aortic valve replacement (TAVR). This study aims to demonstrate the noninferiority of TAVR as compared to surgery. It will certainly contribute to the broadening of the indications for TAVR and probably help to estimate the durability of the actual prostheses. Lower-risk patients have fewer comorbidities and, theoretically, greater life expectancy, enabling the assessment of prosthesis function across a longer time frame. On the mitral side, we are involved in registries evaluating novel transcatheter mitral valve replacement (TMVR) therapies in inoperable or high-risk patients. TMVR remains transapical for the most advanced devices, but transseptal solutions are already under evaluation. The tricuspid valve is also a matter of research at our hospital focusing mainly on repair technologies for the time being.

Over the next 5 years, what percentage of transcatheter mitral interventions will be repair versus replacement?

Transcatheter mitral intervention represents a significant proportion of future percutaneous valvular procedures. There are at least three CE Mark-approved valve repair devices available, but no valve replacement devices have been approved yet. Therefore, more experience will be amassed with repair techniques before the commercial introduction of TMVR devices. As such, valve repair will most likely be selected over valve replacement. This may require more understanding of the underlying mechanism of mitral regurgitation, but its adoption could potentially lead to sustained positive results.

When available, valve replacement may offer the possibility to treat all types of mitral disease, but it will probably remain only a last resort for advanced disease in patients for whom valve repair is not an option. This is in part because after valve replacement, subsequent procedures are less likely to be feasible. I believe the future ratio for percutaneous repair/replacement could be 70/30, respectively.

What will the spread be between transcatheter mitral repair interventions: edge-to-edge versus annuloplasty versus artificial chords?

The edge-to-edge technique has proven its safety and efficiency for both primary and secondary regurgitation. It has experienced a large adoption across Europe, Canada, and the United States, in part because it was the first percutaneous option available. Given the complexity and variability of mitral disease, percutaneous therapies will ideally be tailored to each patient in the future. The edge-to-edge procedure will probably confirm its dominance in this mitral repair space, but I anticipate that annuloplasty and artificial chords will see a greater growth over the next 5 years.

How about the ratio of transseptal versus transapical TMVR?

Both access routes carry advantages and drawbacks. The transapical approach is easy to achieve, allows for a high control of the mitral device, and offers short procedural times. However, because it is a surgical procedure, it may not be well suited for all patients and ventricles, with inherent morbidity related to the cutdown and the ventricular wound.

The transseptal approach is more technically demanding and provides less maneuverability and control of devices. However, this access route is extremely

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well tolerated by the patient. Transseptal procedures represent the future of TMVR. Most available devices have been thoroughly researched and will continue to be utilized via transapical access first due to their bulkiness. Still, future iterations will certainly improve the profile of these repair valves, allowing for safe transseptal procedures.

Combining all transcatheter tricuspid and mitral interventions performed annually, what do you predict as the percentage of mitral, tricuspid, and combined procedures?

Tricuspid regurgitation is often a consequence of left-sided valvular disease and may theoretically improve after the correction of the left heart valvulopathies. Tricuspid regurgitation represents a challenge for percutaneous procedures due to the complexity of the valvular anatomy and the variability of the tricuspid shape and dimensions. More than for the mitral valve, heart teams treating tricuspid valve disease are still identifying the most appropriate patients and anatomies to ensure a substantial clinical benefit.

Procedures and indications for the mitral valve will be easier to master than for the tricuspid valve. Therefore, I do not foresee a high proportion of combined mitral and tricuspid procedures. When treating persistent symptoms, tricuspid procedures will probably be used as a second step option, despite successful mitral procedures. Annually, mitral procedures could represent 70% of the volume, with tricuspid procedures around 25%, and combined at 5%.

What technological development (either a novel device or an improvement to an existing technology) would you most like to see become a reality in the valve treatment arena in the next few years?

The tricuspid valve really represents a challenge for the interventional/surgical community. The dimension of the annulus, the anatomic variability of the valve, and the surrounding structures make it extremely complex to design a device suited to either repair or replacement. Severe tricuspid regurgitation is a highly symptomatic disease hampering quality of life. We certainly underestimate the volume of patients who have this disease and will realize with the emerging technologies that there are lot more candidates than we think. I strongly believe in the capacity of researchers/engineers/physicians to develop a set of technologies for this complex disease.

In regard to your recent tweet about working in your new hybrid suite at Clinique Pasteur, what features of this new suite are you most looking forward to using, and what do you hope it brings to your daily practice?

In the past, we used to perform all of our SHD procedures in a catheterization laboratory on an optimized and small surface. It was difficult to undertake procedures requiring a surgical approach. With our brand new hybrid suite, we discovered a perfect environment for combining skills from cardiology and surgical teams with plenty of room and comfort for the various stakeholders. It enables a wider range of interventions in a very safe atmosphere. The integrated imaging modalities, especially echocardiography and CT imaging, make it easier for us to gain three-dimensional models of cardiac structures. In real-time, we can guide our techniques based on the fused fluoroecho/CT images. This type of hybrid suite maximizes our efficiency and the inherent patient safety, while enhancing the spectrum of SHD interventions that we may perform. Even for a regular transfemoral TAVR case, we would not go back to a standard catheterization laboratory.

What are the challenges, if any, of performing a case live for a conference audience? Do you prepare differently for cases you will demonstrate live during a conference?

As for any intervention, a live case requires a lot of preparation. As every session must fulfill certain learning objectives, the clinical presentation of the selected patients and the projected intervention have to match these objectives. That preparation is mandatory to make sure that both the chairmen/discussants and the operators deliver clear and comprehensive messages to the audience. It is really a team performing the live transmission, and every member must know their role, being ready to complete the case in the usual manner or to immediately deal with any unexpected scenario. We always have two jobs for these cases: one is technically treating the patient, and the other is handling the interaction and discussion with the faculty. The key rule is to treat the patient like any other, with the skillset and devices we've mastered. Once again, preparation is key. ■

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