

# Transcatheter procedures in structural heart disease – The surgeon stepping-in.

Walter Gomes<sup>1</sup> and Nelson Hossne Jr<sup>1</sup>

<sup>1</sup>Federal University of Sao Paulo

August 23, 2020

## Abstract

The seismic impact of transcatheter interventions is rocking the spectrum of structural heart disease (SHD) treatment, with the compelling and attractive appeal of minimally invasive procedures and fast-track discharge. The trend is relentless and continual innovation comes to our doors nearly on a daily basis. Litwinowicz and colleagues describe their trailblazing experience in 223 consecutive patients in whom they performed left atrial appendage occlusion (LAAO) via the percutaneous route. All interventions were performed by surgeons, who had undergone pre-training in a simulation model. Soon thereafter, they were able to achieve outcomes that were comparable to those obtained by experienced interventional cardiologists. The unique surgeons' training and skills in open-heart surgery make their contribution to perfection and safety of SHD treatment, which are potentially exceptional and distinctive. Extrapolating for the entire field of SHD, which is blossoming ahead, the message to be conveyed is that cardiac surgeons must be trained and embrace every aspect of SHD.

## Commentary

### Transcatheter procedures in structural heart disease – The surgeon stepping-in.

Nelson A. Hossne Jr, MD, PhD, and Walter J. Gomes, MD, PhD

The seismic impact of transcatheter interventions is rocking the spectrum of structural heart disease (SHD) treatment, with the compelling and attractive appeal of minimally invasive procedures and fast-track discharge. The trend is relentless and continual innovation comes to our doors nearly on a daily basis.

In this issue of the Journal, Litwinowicz and colleagues describe their trailblazing experience in 223 consecutive patients in whom they performed left atrial appendage occlusion (LAAO) via the percutaneous route. All interventions were performed by surgeons, who had undergone pre-training in a simulation model. Soon thereafter, they were able to achieve outcomes that were comparable to those obtained by experienced interventional cardiologists [1].

However, their conclusion that cardiac surgeons should be trained in both types of LAAO, endocardial and epicardial procedures, is shy and restrictive. Extrapolating for the entire field of SHD, which is blossoming ahead, the message to be conveyed is that cardiac surgeons must be trained and embrace every aspect of SHD.

The unique surgeons' training and skills in open-heart surgery make their contribution to perfection and safety of SHD treatment, which are potentially exceptional and distinctive. In addition to percutaneous interventions skills, the possibility to offer alternative therapies is at hand, such as minimally invasive, and complex redo interventions. Because many patients with SHD have multiple structures affected by the disease, surgeons are also equipped to provide complete multicomponent therapy to each of these structures in one setting [2]. And proper and careful procedure selection are mandatory for the ultimate goal of offering the best to the patient.

The environment for this association is timely, as transcatheter and conventional surgery must coexist side-by-side in the foreseen future, with its intrinsic beneficial indications, drawbacks, and inherent risks. Conventional surgery and its minimally invasive variant will remain the treatment of choice for a large proportion of patients with heart diseases, as the shortcomings of percutaneous procedures still exists in every area. Expanding the scope of percutaneous techniques carries along additional complications, which have to be addressed surgically. As for percutaneous coronary intervention, 30% of patients referred for coronary artery bypass surgery in the United States, had a previous coronary stenting procedure [3]. Just like TAVI is expanding to lower-risk patients, many related short- and long-term complications will be best managed surgically. This is a new and challenging frontier. Like valve replacement for prosthetic infective endocarditis, other unforeseen complications will emerge with these devices, and will have to be treated surgically.

Surgeons with expertise in SHD mastering percutaneous techniques, become the ideal provider. In countries where tighter labor regulatory policies are enforced, just a single operator is allowed, and this is the case for the surgeon.

The authors acknowledge the support of the Polish Society of Cardio-Thoracic Surgeons issuing certificates to surgeons, confirming their mastery in performing percutaneous procedures. Like in Brazil, where the Brazilian Society of Cardiovascular Surgery, partnering with medical device companies, established ongoing educational and training programs, with certification for heart surgeons who completed training and embraced percutaneous techniques. This makes possible the emergence of many “interventional heart surgeons”. Cardiovascular surgery societies around the world must strongly support, and not refrain from offering to its members and local surgeons, the prospect to acquire these ground-breaking and complementary new skills.

Furthermore, the trend towards referring patients in need for cardiac procedures to centers of excellence, a policy aimed at achieving better outcomes and cost reduction, will add elements favoring the insertion and role of the surgeon in this multidisciplinary program.

Although strongly recommended and demonstrated to provide superior outcomes, the concept of the “Heart Team”, where surgeons and interventional cardiologists work together side-by-side in structural heart procedures, is breaking apart, as reported from experience in Europe and the United States. In Europe, there is emerging evidence that the absence of an on-site surgeon and surgical team from the procedure did not increase TAVR mortality or morbidity [4]. In the United States, the value of including surgeons on the Heart Team has been increasingly questioned, not only for percutaneous aortic valve procedures but also for other advanced percutaneous interventions, such as percutaneous mitral valve replacement [5].

The mantra that surgeons have “missed the boat” in being involved in percutaneous procedures does not hold to this point [2], as the boat just hoisted anchors and is set to begin its long journey. This is a large boat, capable of accommodating many spirited and willing newcomers.

The self-reliant approach taken by Litwinowicz and colleagues should be commended and replicated and sets the pace for surgeons around the world. Despite ingrained skepticism and rejection, we strongly advise surgeons to be prepared for this ongoing and rapidly changing landscape, and to seize the timely opportunity. This is an exciting field with ample space for trainees, junior and senior surgeons to be involved and exert their leadership. For those who maintain a passive interest, the boat has already set sail, and the skeptical was already been left behind.

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