assessment of suspected postoperative patient–prosthesis mismatch. We recently reported our experience with the modality of cine-computed tomography (CT) imaging, essentially moving pictures of the valve in motion.² This technique allows unprecedented precision in imaging the valve and its leaflet motion. The cine-CT gives the sensation of almost “being there,” inside the heart, watching the valve work in real time (Figure 2 and Video 1). Cine-CT easily detects thrombus, pannus, and restricted leaflet motion with great accuracy and resolution. In our recent report, we found that many cases of late-onset suspected patient–prosthesis mismatch could be traced to an

increase in a patient’s weight over years postimplant, placing an increased circulatory burden on a properly functioning valve.

References

1. Durko AP, Pibarot P, Alturi P, Bapat V, Cameron DE, Casselman FPA, et al. Essential information on surgical heart valve characteristics for optimal valve prosthesis selection: expert consensus document from the European Association for Cardio-Thoracic Surgery (EACTS)–The Society of Thoracic Surgeons (STS)–American Association for Thoracic Surgery (AATS) Valve Labelling Task Force. *J Thorac Cardiovasc Surg*. 2021;161:545-58.
2. Hsu C, Bourganos K, Zafar MA, Huber S, Buntin J, Ziganshin BA, et al. Cine-computed tomography for the evaluation of prosthetic heart valve function. *Cardiology*. 2020;145:439-45.

See Article page 545.

Commentary: Valve Labeling Task Force: Efforts now needed by manufacturers and surgeons

John A. Elefteriades, MD, PhD (hon),^a and Pavan Atluri, MD^b

Now that the 2 position articles of the European Association for Cardio-Thoracic Surgery, American Association for Thoracic Surgery, Society of Thoracic Surgeons Task Force on Valve Labeling have been published,^{1,2} we find ourselves on the threshold of reaping the benefits of these extensive deliberations. However, we are in the red zone but not across the goal line.

The focus of the joint American Association for Thoracic Surgery, European Association for Cardio-Thoracic Surgery, Society of Thoracic Surgeons Valve Labeling Task Force has been on uniformity of labeling with regard to dimensions, size, and hemodynamic performance. This

CENTRAL MESSAGE

Implementation of the Task Force on Valve Labeling recommendations will require buy-in by manufacturers and familiarization with the data tables by surgeons.

second follow-up article² lays out the outcomes and decisions of the task force that will further aid surgeons in optimal valve selection with a clear elucidation of valve dimensions and hemodynamic performance.

Two further steps are needed before benefits of these efforts translate to surgeons and their patients.

1. Guideline implementation. The manufacturers of prosthetic heart valves need to buy-in to the concept of complete, frank, evidence-based labels for each type and size of valve. They not only need to adopt the recommended table but also need to fill in the data. This will include not only easily measured (now standardized) physical dimension data but also not so easy accurate, echocardiography-based assessments of functional valve

From the ^aAortic Institute at Yale-New Haven Hospital, Yale University School of Medicine, New Haven, Conn; and ^bDivision of Cardiovascular Surgery, Department of Surgery, University of Pennsylvania, Philadelphia, Pa.

Disclosures: J.A.E.: Principal, CoolSpine; Consultant for CryoLife; Data/Safety Monitoring Board for Terumo. P.A. reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Oct 16, 2020; revisions received Nov 2, 2020; accepted for publication Nov 13, 2020; available ahead of print Nov 19, 2020.

Address for reprints: John A. Elefteriades, MD, PhD (hon), Aortic Institute at Yale-New Haven, Yale University School of Medicine, 789 Howard Ave, Clinic Building CB 317, New Haven, CT 06519 (E-mail: john.elefteriades@yale.edu).

J Thorac Cardiovasc Surg 2021;161:562-4

0022-5223/\$36.00

Copyright © 2020 by The American Association for Thoracic Surgery

<https://doi.org/10.1016/j.jtcvs.2020.11.015>

AORTIC

Valve chart for “VALVE” by “MANUFACTURER”

This chart is developed according to the standardized criteria of the EACTS-STs-AATS Valve Labelling Task Force

FIGURE 1. Standardized valve chart for aortic valves, which provides essential information on surgical heart valve characteristics in a uniform manner and allows for comparability between different surgical heart valve models without demanding radical changes in current surgical heart valve designs or labeling. *BMI*, Body mass index; *BSA*, body surface index; *PPM*, patient–prosthesis mismatch. Reprinted with permission from Durko and colleagues.²

size and anticipated gradients for each size valve and particular patient. In most cases, the manufacturers will have adequate data on hand. The task force has called for a minimum of 30 Doppler echocardiograms providing in vivo human data on mean transprosthetic gradient and effective orifice area for each valve in every size. The task force has further stipulated that these data must be accrued within 30 days and 1 year after implantation. If such information is not already available, additional clinical studies will be required of the manufacturer. Furthermore, the manufacturer must include in the charts a patient-prosthesis mismatch (PPM) calculating nomogram. This plots the likelihood of PPM for the proposed valve for each patient's body surface area (Figure 1).

2. Surgeon use. The charts are designed for both completeness and ease of use. The surgeon finds the chart (externally available on the boxes and in paper and computer information sheets) for the valve he is considering. He plots the valve size along the upper horizontal axis and

the patient's body surface area along the left vertical axis. The color code lets the surgeon know the likelihood of severe PPM. A yellow color indicates a 50% or greater likelihood of PPM. The surgeon can modify his valve choice accordingly. The accompanying schematic diagram shows the prosthetic valve in position, with the physical dimensions of the valve indicated.

Cardiac surgeons and manufacturers generally have a positive and strong relationship because they have the shared goals of patient perioperative safety, long-term survival, and good symptomatic state. We anticipate enthusiastic “buy-in” from the manufacturers for this novel approach, especially because they had vocal seats at the table during the task force discussions and expressed full engagement in the goals and plans, in many cases helping us determine feasible approaches to maximize an educated decision on valve choice for our patients. We hope that surgeons find ease and reassurance in using these new tools.

References

1. Durko AP, Head SJ, Pibarot P, Atluri P, Bapat V, Cameron DE, et al; EACTS–STS–AATS Valve Labelling Task Force. Characteristics of surgical prosthetic heart valves and problems around labeling: a document from the European Association for Cardio-Thoracic Surgery (EACTS)-The Society of Thoracic Surgeons (STS)-American Association for Thoracic Surgery (AATS) valve labelling task force. *J Thorac Cardiovasc Surg*. 2019;158:1041-54.
2. Durko AP, Pibarot P, Atluri P, Bapat V, Cameron DE, Casselman FPA, et al. Essential information on surgical heart valve characteristics for optimal valve prosthesis selection: expert consensus document from the European Association for Cardio-Thoracic Surgery (EACTS) -The Society of Thoracic Surgeons (STS) -American Association for Thoracic Surgery (AATS) Valve Labelling Task Force. *J Thorac Cardiovasc Surg*. 2021; 161:545-58.