Peter C. Block, MD

A long-practicing cardiologist discusses the treatment of adult congenital heart disease, the next step in TAVR research, and his current work at Emory University Hospital.

What is the current focus of your work at Emory University Hospital?

The heart team at Emory is primarily focused on transcatheter aortic valve replacement (TAVR), but because of our large referral network, we are seeing patients with a gamut of structural heart problems, including many adults with congenital heart disease who have now survived into young adulthood. Each day seems to bring with it a new wrinkle on how best to try and improve the problems that structural heart disease produces.

What specific challenges accompany adult congenital heart disease treatment, and what can be done to overcome these challenges?

Adult congenital heart disease is very different than coronary disease. Granted, diseased coronary lesions vary widely, but in the final analysis, stenoses are just that. Congenital heart disease, especially after it has been treated early in childhood to ensure survival, can be quite different from patient to patient, even in those with the same general abnormality. What results is a lot of patients who have unique and complex issues that require intervention. This makes it difficult to compare patients with congenital disease and to learn from registries that might not provide answers as readily as one might wish. Many procedures performed in congenital adult disease patients are "orphan" procedures, (ie, those that are individualized for a specific patient), as many congenital defects do not fall into specific categories. Patient comparators are rare, and reimbursement issues can be difficult. We need large national registries to begin to help understand what we should, can, and might do to best treat these patients.

What area of TAVR research is the most urgent to address at this time?

I think we need to be smarter about how we select patients for TAVR. Despite the striking difference in outcomes of TAVR compared to "standard medical therapy" that we saw in the PARTNER I (B) trial, many of the patients who had TAVR succumbed to their comorbidities within a year. Now that a "commercial" valve is available, it is even more important to choose patients wisely so that the cost/benefit ratio remains appropriate. This means sometimes making difficult decisions as to whether patients who have limited life expectancies should undergo TAVR.

What do you think of the proposed idea of implementing a permanent European registry to collect information on TAVR practices in the EU? Would such a program be possible to implement in the US?

I think it is a great idea, and plans are underway in the United States to implement similar registries. Unfortunately, registry results may be tricky to understand if not all patients are included. The success of the National Cardiovascular Data Registry sponsored by the American College of Cardiology will serve as a model, meaning that all (or most) centers performing TAVR will contribute each consecutive patient to a common database.

What tools would be useful for carotid artery access in TAVR for patients whose other access routes are compromised?

We have treated three patients with TAVR via the transcarotid route at Emory. It minimizes the need for surgery, seems to be safe with the use of antegrade perfusion, and patients recover quickly and can return home. I doubt this approach will be used extensively, but as TAVR devices become smaller in diameter, it might be an option for those patients with severe peripheral artery disease. I would like to see the development of better perfusion devices and, of course, smaller TAVR devices to make this approach less challenging.

Who is the ideal candidate for left atrial appendage (LAA) closure? Is it ever a first-choice therapy over medication?

LAA closure is such a moving target! Information from the PLAATO study (which only included patients unable to take warfarin) implied that the stroke rate could be reduced with closure, but PLAATO was not a randomized trial. The WATCHMAN results were confounded by the fact that patients had to be able to take warfarin anticoagulation immediately after LAA closure, so the added risk of anticoagulation and the learning curves of LAA closure made for an indefinite outcome. Now, we have novel anti-Xa agents and thrombin inhibitors that will potentially provide great efficacy and possibly less bleeding complications for patients with atrial fibrillation. Candidly, I believe we have to perform a number of clinical trials to sort all of this out, and patients should be encouraged to join the new trials. For now, LAA closure might be considered for patients who are unable to take warfarin, but until the

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trials are completed, I do believe that medical therapy should be a first step.

What late complications are associated with LAA closure? Are these serious enough to dissuade operators from using this treatment, or are there ways that they can be prevented/treated?

Most of LAA closure complications occur early and include the risks of periprocedural and later pericardial effusion, thrombus on the device, etc. Very late complications seem to be rare. Surgical closure is associated with a surprisingly high late failure rate, which may be a problem for some of the extracardiac devices that are currently in use. The late complications are less serious and should not dissuade operators. The early problems should be minimized by meticulous technique and careful patient selection. The LAA is not a "user-friendly" place, and careful catheter and wire guide manipulations are mandatory to avoid hematoma or perforation. In addition, the LAA has such wide anatomical variability that closure may not be possible by transcatheter techniques in all patients. Preclosure evaluation by angiography and CT scanning can be helpful in this regard.

What do you believe is the most significant change you have witnessed in the field of interventional cardiology during the course of your career in terms of either regulation, technology, procedural technique, etc.?

Remember that I began my career before there was such a thing as interventional cardiology, so the answer is "interventional cardiology." But to answer more directly, regulation and techniques are always changing and will continue to do that. I am most impressed by how the technology has developed. From the "primitive" concept of balloon dilation of a coronary stenosis, we now have drug-eluting, nonrestenotic stents that can be delivered in a few minutes to patients with a STEMI via a 2-mm catheter. Valves are being percutaneously implanted in nonoperative patients with end-stage aortic stenosis via transcatheter systems. And it goes on and on. Interventional cardiology today is the product of intense collaboration between smart engineers in industry and innovative cardiological concept—without that significant interaction, we would still be way behind where we are today. ■

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