

Zoltan G. Turi, MD

This influential cardiologist tells us how he learned from interventional radiologists and shares what he believes is the most important take-home message of his annual closure update.

What can you tell us about your facility/practice at Cooper University Hospital?

We are a large teaching hospital just across the river from Philadelphia, and we have about 40% of the University of Medicine and Dentistry of New Jersey's medical students on site. The lab performs approximately 5,000 cardiac catheterizations and 1,300 electrophysiology studies per year. Somewhat unusually, interventional radiology (IR) is part of the vascular center that I direct, so that some of the 4,000 cases that are performed in IR are accessible to our fellows as well. The best part about the relationship between cardiology and IR is the cross-fertilization of technology and invasive management—I have learned much more from our interventional radiologists than I could ever hope to teach there.



What is the current focus of your research energy?

My research focus roughly parallels my clinical work, which remains a rather eclectic mix of coronary, peripheral, and structural heart disease interventions. I do have a core laboratory that analyzes peripheral angiograms, including a library of more than 5,000 femoral arteriograms. We are drilling down on anatomic features that allow for optimal puncture location and looking at the effect of demographics, as well as different closure techniques, on the progression of disease in the common femoral artery. In addition, I take part in a variety of carotid studies and have been involved long-term in structural heart disease interventions. With regard to the latter, I started in the early valvuloplasty era and currently focus on left atrial appendage occlusion and percutaneous heart valves.

Which areas of coronary artery and structural heart disease need the most attention from industry and physicians in the next several years?

Coronary technology is fairly mature, which is why there is so much focus on the remaining hurdles, such as chronic total occlusions. Structural heart interventions are still relatively young—the next generation of aortic valve technologies will provide repositionable and retrievable valves,

ones that do not require calcium for anchoring, and that address the “round plug in an irregular hole problem” and cause little or no paravalvular leakage. Mitral repair will likely require several approaches, probably in combination, and will engender lots of creativity. However, the aging population will drive much of the clinical demand, in particular for interventions for aortic stenosis.

Our readers have had the pleasure of seeing your annual closure device update. Is there a take-home message that you can provide regarding closure devices?

I never envisioned that nearly a decade after the first update there would still be as much interest and that it would become a recurring feature. I now begin planning for the next edition soon after each year's publication in *Endovascular Today*—and now *Cardiac Interventions Today*, as well. With regard to take-home messages: first, good closure depends on good access. It's a shame that 57 years after Seldinger, so many practitioners still use the basic “hand-me-down” techniques that we were all taught rather than a more evidence-based approach. Second, that evidence base is still in its early evolution, but fluoroscopic and ultrasound techniques can virtually eliminate some of the morbidity of access and closure. Specifically, retroperitoneal hemorrhage (RPH) due to high sticks can and should disappear from catheterization labs. There is a nearly 1% risk of RPH in interventional cases and a 5% mortality rate when RPH does occur. Both numbers must come down to near 0%. Third, I believe closure devices are an important part of both diagnostic and interventional medicine, and I remain a great believer in sealing arteries rather than relying on compression. That having been said, I remain concerned about the safety profile of closure devices. The possibility does exist, although I don't believe it will turn out to be the case, that there is an emperor's clothes syndrome here, and that someday we will look back and say, “What were we thinking when we used those devices?”

In general, vascular access and closure are seen as too pedestrian by most physicians to bother to give them

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much thought, which is a shame given the high percentage of complications attributed to this. If operators took time to do better access, with a host of more evidence-based techniques rather than the “drilling for oil” method, I think we would have far fewer complications. In addition, there are fundamental differences among types of closure devices that I have tried to make understandable using a classification system that we first introduced in *Endovascular Today*. Understanding these differences would allow operators to make rational choices for closure that would help lower complications and improve success rates, as well. Because there remains a significant number of avoidable complications, even deaths, in the vascular access and closure arena, I like to think of these annual reviews as a useful soapbox.

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What is your take on radial access? Should it be more prevalent in the United States?

I think we are voting with our feet on this one. Radial access is growing in the United States, although it is still in the single-digit percentage range. I was an early adopter and went to Holland to observe Dr. Ferdinand Kiemeneij in the 1990s. The technology at that time left much to be desired, but it has improved significantly, and despite my association with femoral access and closure, I in fact perform a significant number of radial cases at this point.

What do you think might be the next big breakthrough in structural heart disease?

Left atrial appendage closure looks to be a winner, especially if the complication rate can be lowered, which I expect will be the case as interventionists go through their learning curve and newer generations of technology are produced. The biggest barrier to entry for this and a number of other technologies is transseptal puncture, and there, too, new technologies and training programs will be forthcoming. ■

For Dr. Turi's 2008 annual closure update, please visit http://citoday.com/PDFarticles/0808/CIT0808_03.php.