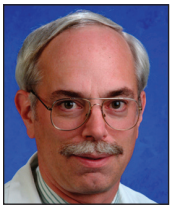
AN INTERVIEW WITH...

Ian C. Gilchrist Sr, MD, FACC, FSCAI, FCCM

Dr. Gilchrist discusses the current state of radial access as a first-line approach in the United States and keys to developing a same-day discharge program.



What are the main focuses of your study/practice?

My main interests continue to be teaching cardiac catheterization skills to both our fellows in training and through either radial training courses or lectures in the United States and internationally. In particular, integrating instant wave-free ratio (iFR)/fractional flow reserve (FFR) techniques within the confines of small radial catheters is my latest interest. Overall, I have always had an interest in clinical trials for both drugs and devices and continue with these projects as the best way to improve care in the future.

What interventional cardiology technological advancement are you most excited about, or most looking forward to?

Direct stenting has been a favorite technique for me. The newer "stents-on-a-stick" designs (such as the Slender device by Svelte Medical Systems, Inc., which is presently being marketed overseas and is now under investigation in the United States) fits with my minimalist approach using transradial access. The bioabsorbable stent concept is also maturing and, while not perfect, is another area of promise. I also believe the application of coronary physiology with iFR/FFR and similar technologies are probably our best bets to deliver care where it is really needed and avoid wasting resources where they will not offer benefit.

Has enough been done to advance radial intervention in the United States?

The short answer is no. The issue in the United States has been that there is no breakthrough technology attached to transradial access to monetize the field. You can usually employ transradial access with equipment that is not much different than what is used for femoral access. This leaves very few commercial interests to push the field, and unfortunately, our professional societies are not particularly interested in advancing newer ideas that are not backed by industry money. The biggest driver for transradial access in the United States has been patient satisfaction and younger cardiologists differentiating themselves from the legacy of the femoral generation. However, this grassroots approach takes longer than one driven by a national campaign.

Do you believe that the end of the "femoral-first" era is coming to America, or are we still firmly entrenched?

The adoption of new technology always follows a logistic curve—slow at first, then a rapid rise, and then a plateau until the market saturation point. Every market around the world has followed this curve, and no region has ever reverted back to femoral once they transitioned to the radial approach. The United States is in the rapid growth phase right now and should ultimately rise to the 80% to 90% adoption rate based on present technology. There may always be a role for femoral artery access, but to use it for standard arterial work that can be done through the radial artery risks damaging the femoral artery that can simply be avoided by using the radial. Cardiologists need to use the right tool in the right vessel at the right time. There is a role for the femoral, but only after one considers all options, in my opinion.

Are there any data still missing after MATRIX?

MATRIX is the latest of a series of trials that show the benefit of radial access. There are always some areas of interest or newer technology that can be tested. For instance, in the older population subset, there have been concerns about the application of transradial in a STEMI population, and the question of complete versus incomplete revascularization in this setting. We

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are presently in the process of launching the SAFE-STEMI for Seniors trial, which will hopefully fill in a little more data.

In the bigger picture, if you can perform a transradial procedure with a 4-F catheter, perhaps with physiology backup with an FFR-type technology, you can probably beat the best CT scanners or stress testers in triage and provide appropriate treatment of chest pain with less radiation, less contrast, more definitive therapeutic options, and more efficient care. This could really expand the use of cath lab–based therapy.

What level or breadth of data would be enough to influence a change in the United States guidelines?

Not to be a wise guy, but in the preamble to all the guideline documents, the criteria for different levels of evidence are listed. For some time now, transradial access has had multiple randomized clinical trial data typically rewarded with class Ia recommendations. The European organizations have long recognized this fact. Guidelines should help elevate the level of care, and the endorsement of the transradial approach would raise the bar on quality care. The data are there, the guideline committees just need to follow their own guideline protocols.

What level of experience do you think is appropriate to obtain and/or maintain operator proficiency with radial access?

We teach radial at the same time as femoral to our fellows, and they do just as well. In fact, many are better at safe arterial access in the wrist from their experience with radial arterial lines as residents. I don't see any difference between experience for radial versus femoral. On the other hand, bad femoral technique can easily turn into a deadly access site complication. The radial site is much less likely to result in a life-threatening complication and may be more forgiving in the long run for lower-volume operators once trained.

There seems to be sound reason from some in the interventional cardiology community for discarding the Allen test from assessment for radial access. Why is this still part of the preprocedure assessment, and what should replace it, if discarded?

I have not used the Allen test in 20 years and don't miss it. The critical care community discarded the Allen test long ago as a triage tool prior to arterial lines, and cardiologists just got sidetracked in their fascination with this legacy test. There are no data to suggest that the Allen test, or any of its more refined derivations, has ever predicted outcomes. The worst outcome ever reported from an abnormal Allen test has been death from retroperitoneal hemorrhage after groin access. This test should be discarded as a triage tool for access site choice.

How significant is the higher occurrence of radial artery occlusion (RAO) in women than men? What factors create this difference, and what steps can be taken to help mitigate the increased risk of RAO in these patients?

RAO is associated with the size of the radial artery and size of the equipment passed through that vessel. Because women have small radials, they are more likely to have a greater mismatch between the arterial size and equipment size and, therefore, a greater risk of occlusion. In any patient, I would encourage operators to use the smallest sized catheter to do the job at hand. If a 5-F device would work just as well as 6 F, then use 5-F catheters or even 4 F. Likewise, careful hemostasis with the minimum occlusive pressure and the use of patent hemostasis techniques works to reduce occlusion.

We have also done some work that suggests that a post-procedure dose of nitrates into the radial artery just prior to sheath removal may also enhance your chances for an open artery. Finally, every patient should receive heparin or an equivalent medication. I still see patients with occlusions after operators have cut corners by giving a low dose or no heparin. This results in closed radial arteries. If best practice guidelines are followed, you should have radial occlusion rates under 1%, and because it is asymptomatic, this complication is really a nonissue for most.

What basic framework is needed to develop a same-day discharge program? What specific steps can be taken, protocols implemented, or helpful components that are needed for success?

I sent my first percutaneous coronary intervention (PCI) patients home the same day back in 1999, so we have developed quite a track record. It was patient enthusiasm that drove this and certainly not support from the administration or my colleagues. You need to first understand that after a standard, successful PCI, early complications are extraordinarily rare, and late complications will not be prevented by keeping the patient in the hospital overnight. It should also be recognized that the hospital is not a safe place to be (due to infections, medical errors, etc.), and patients feel safer at home. Unless you believe this, you will not get your colleagues and staff to follow suit, and your program will not work.

We presently send all of our uncomplicated PCI patients home the same day, even the rare femoral case. Patients are told up front that this is a same-day

procedure with a small chance of an overnight stay, so families and patients come with this expectation. The most important safety factor is confirming that there is a support system for the patient when they return home. Although we have not had any true emergencies after discharge, there should be someone readily available to help the patient on the first night home. We also give clear instructions on whom to call for problems and then follow-up the next day with a call from our group. The initial education focuses on antiplatelet therapy and access site care, with preventative care as a secondary topic awaiting reinforcement later as an outpatient.

We have found that set exclusion criteria such as age or comorbidities are not useful. For instance, a mildly demented elderly patient with compensated left ventricular dysfunction does much better in the care of his or her family than staying in the hospital overnight and risking confusion and mental decline. The keys to success are simply an uneventful PCI and access hemostasis, combined with solid social support after discharge, all backed up with a safety net that includes early follow-up. At this point, we have trouble convincing patients of the need to stay overnight once they have been through the same-day approach. ■

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