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A leading interventional cardiologist discusses percutaneous AAA repair, the role of creativity in intervention, and features of the C3 Conference.

You have popularized the technique of percutaneous AAA repair. Can you tell us how it all began, and what are the benefits of this technique? We have been performing AAA stent graft procedures for the last 12 years. More than 1,100 patients underwent endoluminal AAA repair at our institution. Since the beginning of our experience, almost all of our AAA endograft procedures have been performed in the cardiac catheterization lab via percutaneous approach and local anesthesia. More than 800 patients underwent endoluminal AAA repair via percutaneous approach. We have previously reported our experience with this technique, and our results have revealed that with this approach, we can shorten the procedure and avoid the risks of general anesthesia and surgery. There is also significantly less blood loss and less need for blood transfusion. Our patients do not require recovery room stay and are able to eat shortly after the procedure. They are able to ambulate 8 hours after the procedure on average and are discharged from the hospital 24 hours after the procedure. They usually return to their normal lifestyle 48 hours after being discharged from the hospital. I hope that this approach will become a standard of care in the near future.

You recently performed a novel aortic wrap around an infrarenal aortic neck to abolish an endoleak that was unresponsive to various endovascular attempts. Can you discuss how this creative approach works? Until recently, in patients with endoluminal AAA repair and refractory type I proximal endoleak, the only remaining option was a surgical conversion and removal of the endograft. To correct this problem and to avoid major surgery, in the last few years, we have been performing a minor laparotomy and an aortic wrap procedure.

The aortic wrap procedure basically consists of using a commercially available polyester graft, 10 mm or 12 mm in diameter, which is wrapped around the infrarenal aortic neck to correct the problem of endoleak. The procedure can also be done through a very small retroperitoneal incision. With this approach, one can avoid major abdominal organ manipulation, bleeding, and aortic cross-clamping. This procedure does not take more than 30 minutes. Our patients have tolerated this procedure significantly better than surgical conversion. There is less bleeding and a lower incidence of other complications. Our preliminary results in five patients have been excellent, with complete resolution of the endoleak.

When treating lower-extremity lesions, what do you consider when deciding whether to intervene with stent placement or a nonstenting option? We have been using stents for the treatment of lower-extremity disease for a decade and a half and have seen both benefits and also disadvantages in certain scenarios. Stent placement can help to avoid thrombosis and major complications when you have a flow-limiting dissection. However, the current generation of stents can present problems in femoropopliteal arteries. They do not perform well over the long term because of a relatively high incidence of restenosis and stent fractures, which eventually lead to restenosis or thombosis. Therefore, we use stents only in scenarios when balloon angioplasty or newer technologies, such as CryoPlasty or laser have failed.

In complex lesions that involve femoral, popliteal, or tibioperoneal arteries, we frequently use a combination of interventional therapies. For instance, in patients with long-segment SFA occlusions, we frequently start the procedure with excimer laser ablation and follow it with CryoPlasty. In our experience, this combination of therapies has shown encouraging preliminary results in reducing the incidence of restenosis. The decision-mak-

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ing process should take into account the location of the lesion, the amount of calcium, presence of occlusion or stenosis, lesion length, presence of diabetes, history of smoking, previous interventions, failed surgery, distal runoff, and inflow problems.

What are your thoughts on the recently announced BTK CHILL trial data, which evaluated the use of CryoPlasty below the knee? We participated in the BTK CHILL trial. This trial has revealed very promising early and midterm results for treatment of patients with popliteal and tibioperoneal occlusive disease. We frequently use CryoPlasty in limb-salvage scenarios. This procedure offers a significantly lower incidence of dissection and lower rates of restenosis.

Of course, longer follow-up in a larger number of patients will be needed to determine all the benefits of this procedure.

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How can today's aortic endografts be improved upon, and what will the next generation of aortic aneurysm treatment likely be? There is no simple solution to some of the problems that exist with the early and current-generation endografts. We have been performing stent graft procedures for the last 11 years. In the last decade, aortic endografts have undergone significant technologic improvements. We are now using the third- and fourth-generation stent grafts. Most of the first- and the second-generation stent grafts have shown suboptimal long-term results. Several endografts have been removed from clinical use because of less than satisfactory performance. This includes endograft migration, separation of modular components, graft material perforations, stent fractures, endograft thrombosis, and various types of endoleaks. We have to emphasize endograft durability. There are still too many secondary interventions performed to correct the problems with endoleaks, endograft migration, and separation of modular components.

We are still in search of devices that will have good long-term outcomes. The new generation of stent grafts must take into consideration flow dynamics and compliance issues of the stent grafts and the abdominal aorta. We have previously shown that there is a considerable mismatch in compliance between the stent graft and the aorta for a great majority of current endografts. This mismatch causes significant stresses and sheer forces on the stent graft, the aorta, and the iliac arteries. This could lead to thrombosis, aneurysmal dilatation, and structural disintegration of the stent grafts. However, I believe all of the aforementioned problems will soon be resolved. The future generation of endografts will be lower profile and more suitable for complex aortic anatomy. The aortic aneurysm procedures will be routinely performed via percutaneous approach and local anesthesia. A remote sensor technology will be improved and will receive broader acceptance among interventionists to monitor aortic aneurysm sac pressure in a noninvasive manner.

What can we expect from Concepts in Contemporary Cardiovascular Medicine this year? Our annual Concepts in Contemporary Cardiovascular (C3) Medicine Symposium will be held on April 18-21, 2007 in Houston, Texas, at George R. Brown Convention Center. It is a multi-institutional symposium that gathers experts in the endovascular field and cardiovascular medicine from the Texas Medical Center and the University of Texas at San Antonio. We also have an excellent national and international guest faculty. The conference is designed to further one's knowledge in cardiovascular medicine, interventional radiology, vascular surgery, and endovascular interventions. This symposium is particularly of interest to cardiologists, cardiothoracic surgeons, and vascular surgeons. There will be a separate mini symposium on peripheral vascular disease that will include the information on the latest advances in evaluation and treatment of arterial disease and venous disease. There will be many live case demonstrations throughout the symposium, showing a variety of procedures from different institutions.

What other conferences are you involved in? Our Fifth Annual Endovascular Summit will be held from July 22 to 25, 2007 in Colorado Springs, Colorado, at the Broadmoor resort. This symposium is designed for all vascular and cardiovascular specialists and will discuss in detail issues in managing problems during endovascular interventions. It is designed for beginners and advanced interventionists who seek further knowledge in complex interventions and scenarios where problems occur. The meeting will emphasize diagnosis and treatment of peripheral vascular disease and the latest advances in vascular imaging, technology, and techniques. ■