

From Data to Decision: How Will We Apply the 12-Month DEFINITIVE LE Evidence to Clinical Practice?

AN INTERVIEW WITH LAWRENCE A. GARCIA, MD, AND JAMES F. MCKINSEY, MD, FACS

Why is it important that the DEFINITIVE LE study was conducted?



Dr. Garcia: One of the perceived problems with directional atherectomy has been its consideration as a niche device that is strictly reserved for areas we do not want to stent. DEFINITIVE LE showed us that not only is directional atherectomy useful and durable in those “no-stent” locations, particularly behind the knee, but it should now also be considered more of a workhorse in areas like the superficial femoral artery (SFA) and the infrapopliteal segments. We are now able to “shore up” a glaring need in the scientific world for sound data around this technology and when it should be used.



Dr. McKinsey: DEFINITIVE LE was designed to address questions regarding the efficacy of peripheral directional atherectomy in treating “real-world” peripheral arterial disease (PAD) patients. We had 47 sites throughout the world and 150 investigators and subinvestigators participating in this study. There has been a number of single-center or multicenter studies, but all self-reported without core lab or Clinical Event Committee (CEC) adjudication. While many of us felt that directional atherectomy was the best way of treating many of our patients, we really didn’t have the data behind it. DEFINITIVE LE has the CEC adjudication and independent angiographic and duplex core

laboratory adjudication. All results of the trial have gone through evaluation by core lab and CEC adjudication to strengthen the objective nature of this study.

What does DEFINITIVE LE tell us about the use of directional atherectomy in patients with claudication?

Dr. Garcia: One of the key takeaways confirms what many of us have always thought: directional atherectomy can be used successfully in locations where you do not want to leave a stent behind, particularly in the popliteal segment behind the knee or below the knee in the tibial vessels. DEFINITIVE LE has proven that directional atherectomy in this location behind the knee is durable, safe and effective, with a primary patency of 77% (peak systolic velocity ratio [PSVR] ≤ 2.4 ; mean lesion length, 6.0 cm). Moreover, DEFINITIVE LE has proven the durability of this therapy as a workhorse in the SFA, with 83% primary patency in lesions 4 to 9.9 cm—a remarkable outcome. The last part of the claudicant picture is something that no study has proven previously, a 90% primary patency rate (PSVR ≤ 2.4 ; mean lesion length, 5.5 cm) in the infrapopliteal segment, another significant outcome.

What makes this study different from other atherectomy trials conducted in PAD patients?

Dr. Garcia: What makes the DEFINITIVE LE study different from most other atherectomy trials is the rigor

of independent adjudication of events through sonographic core lab, angiographic core lab and CEC review, and the sheer number of patients enrolled (800). This is a critical issue that cannot be overlooked and makes DEFINITIVE LE very unique when compared to any other atherectomy trial.

What were the results in patients with critical limb ischemia (CLI)?

Dr. McKinsey: The results for CLI patients were very interesting. Patients with disease below the knee had 78% primary patency at 1 year. Probably even more significant, though, was patients who presented with limb-threatening ischemia and were treated had a 95% limb salvage rate at 1 year. That's really why we're intervening, we're saving these patients' legs. We also showed that there was a very low rate of acute complications when treating CLI patients given that 30% of the lesions were chronic total occlusions.

How will the results of the study impact PAD treatment in diabetic patients?

Dr. McKinsey: Many studies before DEFINITIVE LE actually showed that diabetic patients were at a disadvantage when compared to the nondiabetic cohort, which meant that no matter how diabetic patients were treated, they didn't do well. Early single-center studies have reported comparable results in the diabetic and nondiabetic patients, but this was observational data, and DEFINITIVE LE was prospectively powered to determine if the results of treatment with directional atherectomy were inferior in the diabetic patient population compared to the nondiabetic population. With DEFINITIVE LE, we questioned that and found that diabetic patients fared as well as nondiabetic patients when treated with directional atherectomy. This is key because we're seeing a growing rate—near epidemic proportion—of diabetes in the United States and worldwide.

What message would you like to send to PAD patients about this study?

Dr. McKinsey: It's key that patients suffering with PAD know that there is a minimally invasive treatment option for them that leaves nothing behind. Another thing is that directional atherectomy allows us to remove the offending plaque, rather than smash it or push it aside or treat it through a major surgical procedure. It also doesn't burn bridges—if you leave something in the vessel after treatment, such as a bare-metal stent or even a drug-eluting stent, and the patient has a recurrence, you now have to treat the restenosis, and you have to deal with a foreign body that's left

behind. The SilverHawk (Covidien, Mansfield, MA) and TurboHawk (Covidien) peripheral plaque excision devices leave nothing behind.

What is the key takeaway that you'd like readers to remember about DEFINITIVE LE?

Dr. Garcia: The key thing to remember with DEFINITIVE LE is that we now know that we can safely and effectively treat the patients we see every day with technology that has not only been substantiated but also proven, scientifically, to be durable with a 12-month patency and limb salvage endpoint. This technology clearly can treat lesions in the whole leg, including those “no-stent” areas behind the knees and even in the SFA. This assertion is no longer conjecture; it is now part of the scientific landscape.

How can clinicians apply these data to clinical practice? Do the data help with patient selection?

Dr. Garcia: These data should take their scientific place with the other well-done trials studying the lower limb that have demonstrated that revascularization is better than medications alone in the lower limb. DEFINITIVE LE has further shown that an up front debulking strategy is not only safe but is now proven effective and may be the best first approach—to leave nothing behind—in our patients with symptomatic disease. ■

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