April Is Limb Loss and Limb Difference Awareness Month: Six Limb-Saving Lessons Learned by Physicians Recognized as PAD Patient Champions

Steve Berkowitz, MD, FACC[1]; Kirstin Rizk[2]

[1]Modern Vascular, Mesa, Arizona; [2]Freelance Writer, Oxnard, California

April is Limb Loss and Limb Difference Awareness Month, which is of paramount importance now, in 2022, as unnecessary amputations are still occurring at a staggering rate. For example, in 2015, 75% of all adult hospitalizations for nontraumatic lower extremity amputation were diabetes related.[1] It is through peripheral arterial disease (PAD) that people with diabetes lose circulation to the foot and toes, leading to amputation. Thus, physicians should be concerned that an analysis of Medicare data from 2016 to 2019 showed that about 69% of Medicare patients who ultimately underwent major amputation with a diagnosis of chronic limb-threatening ischemia had received no attempt at revascularization prior to amputation.[2]

Because patients are having amputations without fully understanding all their options, the nonprofit organization The Way to My Heart was formed. The Way to My Heart works to educate and advocate for patients with PAD at risk for limb loss. The group established the third Saturday of February as National Red Sock Day to raise awareness for PAD and amputation prevention. On Red Sock Day this year, The Way to My Heart hosted a conference inviting specialists to share their most important limb-saving lessons. Some were even nominated by patients and awarded for their patient advocacy. Stephen Leschak, MD, managing physician at Modern Vascular in Southaven, Mississippi, was given the 2022 U.S. Patient Champion award. After reviewing the Heart Disease Patient Conference from this year and last, we sat down with Dr. Leschak to gather valuable lessons learned in the pursuit of decreasing amputations. Provided here, from recognized limb-saving physicians, are several important tips to help raise awareness toward the goal of preventing further needless amputations.

#1 Listen to your patients. Because physicians rely heavily on measurable factors to make conclusions about a patient's condition, the patient's own feelings can easily fall to the wayside, especially if the patient has several comorbidities, is overweight, or is elderly. Aches and pains can be dismissed as symptoms of carrying significant weight or normal signs of aging. But if your patient has risk factors for PAD and complains of constant low-grade foot pain, nonhealing wounds, or muscle cramping in the legs while exercising or during the night, they are an immediate candidate for a PAD assessment. Decreased blood flow to the extremities needs to be taken seriously and addressed before complications arise. Ignoring these complaints could ultimately result in amputation. Dr. Leschak regularly encounters patients who have seen several specialists that have minimized or shrugged off the foot pain that prevents them from walking. And, because walking is crucial to slowing the progression of PAD, this should have been addressed immediately to prevent PAD from becoming limb threatening, such as in the case example provided below that describes the successful diagnostic path and treatment of PAD in a patient who would later nominate Dr. Leschak for a patient champion award.

Sara,* who had been seen by several physicians for leg pain, felt she was finally heard for the first time when she visited Dr Leschak. Because other physicians had not taken her leg pain seriously, Sara ultimately did have to get an amputation. If any of the doctors she had seen before Dr. Leschak had listened to her about the severity of her symptoms, or if she had crossed paths with Dr. Leschak sooner, there would have likely been a chance to save her leg. As also shown by this patient, aside from the clinical benefits of hearing how a patient is experiencing their disease, listening to a patient significantly improves the patient's trust in their physician. Sara recounted that, after her amputation, "[Dr. Leschak] immediately called me and spoke to me for probably about an hour on the phone. He is still looking out for me." Though she resides in a different state now, she still feels listened to by Dr. Leschak. "He is always going to be my doctor, regardless of where I am." Sara went on to nominate Dr Leschak for the U.S Patient Champion award that was awarded to him in 2022.

#2 Feet should be evaluated every visit for patients over 50 or those with diabetes, a smoking habit, leg/foot ulcers, neuropathy, gangrenous changes, or PAD, says Craig Walker, MD, of Cardiovascular Institute of the South in Houma, Louisiana. While some patients experience significant symptoms, others experience none at all. Most patients with lower extremity PAD do not exhibit classic claudication[3] and therefore might not stand out as being at risk for amputation to most doctors. Further, patients with neuropathy may not be able to tell that they have a wound or that one foot is colder than the other. A visual exam, checking for neuropathy, and assessing the quality of the pulse on the ankle might be the difference between intervening on a diseased limb in time to save it and losing the limb due to PAD or an infection entering an ulcer and spreading to the bone.

#3 Not all specialists have the same skills, and few are willing to revascularize below the knee (BTK). In every niche, there will be disagreements on the best methods and who has the most skill. In PAD treatment, there is significant variation: vascular surgeons, interventional radiologists, and interventional cardiologists can all treat PAD and use different approaches to do so. While many agree that an endovascular approach is best because it is as effective as peripheral bypass surgery, yet has a lower 30-day mortality,[4] disagreements arise on topics such as who is best suited to perform an intervention and if it is safe to catheterize BTK or ankle. Studies on BTK revascularization can be misleading because they are often not including only physicians who specialize in BTK revascularization but vascular procedures in general. Dr. Leschak estimates that around 8% of PAD specialists in the United States revascularize all the way through the pedal-plantar loop. He had not seen BTK revascularization before working for Modern Vascular and learning the technique himself. "I'd never really seen it and I went to some big institutions in Philadelphia," he says. "I talked to an endovascular surgeon in Montgomery, Alabama, and he said the standard of care is to go to the knee and be done." Vascular surgeon Wande Pratt, MD, who is fellowship-trained at Harvard University and the University of Texas, has indicated to Dr. Leschak that he does not know of any of his surgical colleagues performing below-ankle interventions or the complex BTK interventions that he is currently performing. "Groups of people are doing it," Dr. Leschak adds, "but it's rare."

Yet, physicians with extensive training on pedal-plantar loop revascularization find BTK recanalization critical to improving a patient's quality of life, promoting the healing of diabetic foot wounds, and preventing amputation. In fact, one study showed that "at the 1-year follow-up, the PAR (endovascular pedal artery revascularization) group showed greater freedom from major amputation (96.3% vs 84.2%; P=.009) [than those who did not receive PAR]," and "successful PAR significantly improved wound healing in patients with critical limb ischemia (CLI)."[5] Thus, efforts should be made to revascularize the pedal arteries, especially when the pedal arch is completely absent.

#4 Know the limitations of screening tools. Always screen for PAD when indicated, but be aware that screening tools should not eliminate the possibility of PAD. For example, Dr. Leschak warns, "ankle-brachial index (ABI) is misleading in diabetics because they have heavily calcified vessels, which might not compress, resulting in a falsely negative ABI." A study published in *Vascular Medicine* confirms this, showing that "among a contemporary, real-world CLI population, 29% had near normal or normal ABI."[6] Further, Dr. Leschak states that inframalleolar disease or disease in the pedal-plantar loop might not even be picked up by ultrasound. For this reason, screening tools can help catch those patients with underlying PAD with no symptoms, but it should not be used to rule out PAD. Patients with normal ABI or ultrasound who still have symptoms consistent with PAD and/or a physical evaluation showing poor capillary refill in the feet or toes should be further evaluated. "If they say they have cramps in their calf or toe and it's waking them up at night and preventing sleep," Dr. Leschak says, "I do a definitive arteriogram and I look in the artery with intravascular ultrasound."

#5 Recognize the need for broader coordinated care. Patients with PAD, especially those who are also diabetic, have complex health needs that require coordinated multidisciplinary care. According to the official journal of the European Federation of National Associations of Orthopaedics and Traumatology, "85% of all lower-extremity amputations in patients with diabetes are preceded by an ulcer."[7] These ulcers, which can be gangrenous or expose bone, should be treated by a wound care specialist. Diabetes should be controlled with the help of an endocrinologist. A podiatrist should oversee the treatment of diabetic foot. If PAD may be a factor, evaluation by a PAD specialist (which may come in the form of an interventional radiologist, interventional cardiologist, or vascular surgeon) could be the determining factor that preserves the limb. Dr. Leschak states, "If an ulcer is treated without recanalizing the artery supplying the ulcer bed, you may be inadequately treating these patients, which will increase the risk of amputation. Wounds need blood flow to heal." Because we know that almost two-thirds of patients with CLI who ultimately underwent major amputation did not receive revascularization or angiography before their amputation,[2] there is still sufficient work to be done in the way of amputation prevention.

#6 Amputation should always be a last, not a first, resort. Surprisingly, Dr. Walker has found that not all share this opinion. During *The Way to My Heart* conference in 2021, he shared that he learned the true significance of limb salvage when treating a 52-year-old patient with severe artery blockage who had already been through 5 prior bypass surgeries and had been told by several major hospitals that amputation was his only option. Because the patient's disease was so severe, Dr. Walker was hesitant to intervene. He told the patient, "I'm worried I might hurt you." The patient responded, "You won't hurt me as bad as I'm gonna hurt myself. Before I lose my limb, I'm going to kill myself." This, combined with the knowledge that an angiogram was not as detrimental to the patient's health as an amputation, pushed Dr. Walker to try. During the angiogram, he saw that blockages below the knee completely blocked off the peroneal artery, but he was able to penetrate the blockage with a laser probe. This artery had not shown up on any of the previous studies performed either by himself or other clinicians the patient had visited at the major medical institutions where he had sought care. "Sometimes we get high and mighty and say there's no vessel there, but guess what? We need to look, because often it's not so obvious." The patient ended up having toes amputated, but the foot was saved and he was still walking 13 years later because Dr. Walker bothered to try.

A criticism that Dr. Walker sometimes encounters is that he is treating too aggressively with endovascular procedures. "They say, 'you might hurt a vessel in the leg if you do an angiogram or intervention.' And I say, 'do you think I'm going to hurt it more than you're going to hurt it by cutting the leg off?'"

Perhaps the most important lesson to take away from *The Way to My Heart* conference is a recommendation by its founder, Kym McNicholas. Through her work advocating for hundreds of PAD patients with amputation at stake, McNicholas always stresses the importance of getting a second opinion if amputation is recommended. Whether due to lack of knowledge of revascularization options or inability to perform them, patients are losing limbs needlessly. Because 5-year mortality after major amputation is 56.6%,[8] physicians have a duty to commit to amputation prevention to save lives, and that starts with education. ■

**Name changed for patient confidentiality.*

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Address for correspondence: Steve Berkowitz, MD, Modern Vascular of Mesa, LLC, 535 E. McKellips Rd. #111, Mesa, AZ 85203. Email: sberkowitz@modernvascularmail.com

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