Dr. Karen Bauer (00:05):

Hello and welcome to the Peripheral Artery Disease Podcast titled, "PAD: Evaluating the At Risk Patient." This is the fifth podcast in a series of podcasts from the American Heart Association PAD Initiative. This is part of the PAD National Action Plan. I am Karen Bauer, a DNP out of the University of Toledo Medical Center where I am the director of wound and vascular services. I've been practicing in the wound care field for about 15 years and added vascular medicine to my repertoire about eight years ago. I have with me a very treasured expert, Dr. Windy Cole, if you would like to introduce yourself to our audience today.

Dr. Windy Cole (00:50):

Yes, thank you Dr. Bauer. Thank you for the invitation to participate in this podcast. As you mentioned, I'm Dr. Windy Cole. I'm a podiatrist. I practice in the Cleveland, Ohio area. I really identify as a wound carologist and not so much general podiatry any longer. For the past probably 10 years, my practice has been wound care centric. Currently I'm the director of wound care research at Kent State University College of Podiatric Medicine, and I'm also the national director of clinical safety, quality, and education for wound tech. So this podcast is great. I think we're going to hopefully speak to the audience and gleam some very important information, so happy to be here.

Dr. Karen Bauer (01:40):

Wonderful. Thank you so much for joining us today, Dr. Cole. And I love that term, the woundologist. And I think as we talk about peripheral artery disease today, we're going to add the vascular to that, because I think you and I have both seen in practice that we cannot separate the vascular aspect from our wound care practices, and in fact, we serve as gatekeepers. We're great people to start that conversation going and start the diagnostic workup for peripheral artery disease. So we appreciate your input as we proceed through today.

(02:10):

I want to start just with the very basics, and from a wound care standpoint as well as the vascular standpoint, let's briefly review PAD risk factors and how we can recognize those early in the wound care setting, because we know that the earlier that we identify peripheral artery disease, especially in the setting of tissue loss, the better outcomes we're going to have for our patients. So when we're looking at things like mixed venous or arterial disease or how some of these other lower extremity and foot ulcerations are presenting, what is your input on identifying those risk factors and then proceeding from there with our patients?

Dr. Windy Cole (02:45):

Yeah, that point is very valid. Time is tissue, right? So working in wound care clinics and academic institutions and inpatient centers as a podiatrist seeing low extremity ulcerations, ruling out peripheral arterial disease is always first and foremost in my clinical algorithm. So when I'm looking at my patients, really and truly my personal goals and part of my treatment algorithm is to always get noninvasive vascular testing for my patients. So really any lower extremity wound gets initial evaluation to roll out PAD, because we know that it's such a significant risk factor and it goes unidentified in the vast majority of our patients, and it's even more important for me in patients that have a history of coronary artery disease or diabetes. Those are two big red flags in my patient population that I see correlates with PAD. So really and truly, it's part of my regimen to get non-invasive vascular studies for any new patient that presents with a lower extremity wound of any significance.

Dr. Karen Bauer (04:06):

Wonderful. So for instance, if you have a patient presenting, say, with a heel pressure ulcer, with or without diabetes you're getting those noninvasive vascular studies. Can you elaborate a little bit on what that looks like from a documentation standpoint as far as getting those covered, and documenting those risk factors that the patient might have that help you come to the conclusion of obtaining those studies? And what do those studies look like? Is that something that you have at your disposal? Are you getting single level ABIs? Briefly describe what that looks like for you.

Dr. Windy Cole (04:39):

Yeah, so I've worked in various locations, and sometimes my access to vascular evaluations is better than others. Luckily in my outpatient center at the current hospital system, vascular and wound care are side by side. So you had mentioned in the opening how important it is to have our vascular medicine specialists as our right hand guys and gals, because without appropriate blood flow, these wounds won't heal no matter how good of wound care that we're providing, and we could be using the most advanced dressings. If we're not getting that flow, unfortunately tissue regeneration can't happen. So I am lucky that I work very closely with our vascular department and it's close by and nearby to me. I think that a lot of clinicians get fooled by palpable pulses, and one of the pearls I hope that our audience gets from this is don't be fooled by palpable pulses alone. There are quite a few studies that show that palpable pulses don't really correlate with good peripheral flow. Sometimes actually we're feeling our own pulse, not necessarily the patient's pulse. So again, it really necessitates the need for those screening evaluations, like noninvasive vascular studies.

(06:13):

So everybody's used to getting an ABI, and I think ABIs are fine, but in patients that have diabetes in particular, we could be fooled by the ABI. So I always go a step further and I advocate for a TBI and pulse volume recordings too. So the ABI, the Ankle Brachial Index, TBI is Toe Brachial Index, and then pulse volume recordings are our PBRs. And those are my go-to noninvasives. And again, with patients, especially the diabetics, which I see quite a few of, we know that they have large vessel disease, they can have calcification of those large vessels around the ankle, and unfortunately we can get abnormal ABIs or even normal ABIs, and that really doesn't indicate to me if they have good blood flow into the foot or in the particular area. If they have a plantar surface ulcer or a sub fifth metatarsal, I really want to know what kind of flow they're getting distally to know what their potential for healing is.

(07:23):

So with ABIs, if they have calcified large vessels, sometimes we can get an elevated ABI, so we could feel like, "Wow, they have a good ABI so they must have good peripheral flow," but really it's falsely elevated because of the calcified large vessels. And then oftentimes, and I'm sure you've experienced this too throughout your career, we could get an ABI that comes back that says that they can't compress, so an ABI can't be achieved. So that doesn't give us any information either. So is it that the vessels are non-compressible because they're calcified, or are we getting a null ABI because they have low flow into the distal foot?

(08:08):

So getting that TBI, that Toe Brachial Index, to me is a lot better. It really gives me that piece of information that I need to see if a patient does need vascular intervention, because those small vessels, although patients with diabetes can have micro vessel disease, it's less common to be as significant to throw off that TBI. So if they have a good TBI and a abnormal ABI or a non-compressible ABI, or even a falsely elevated ABI, I really depend on that TBI to let me know what the distal flow is.

Dr. Karen Bauer (08:47):

I think you bring up some really great points there. Thank you for that discussion. I think for looking at primary care settings or those of us who are not woundologists or practicing in the vascular setting, the single level ABI is a good starting point. And especially our patients with wounds, if there is tissue loss present and patients have risk factors like you talked about such as coronary artery disease, age, renal disease, diabetes, really important to refer early if you do have a vascular medicine or vascular surgery specialist or woundologist in your area, because once there is tissue loss, be it that you're suspecting it may have a venous component or a diabetic component, if you have any question about how those ABIs or those initial studies are reading, always better to have those vascular specialists take a look, because in the setting of tissue loss it becomes very important. So I think you made a really great point with regard to ensuring that we are taking a little bit of a deeper look, especially when there's tissue loss.

(09:46):

So with those risks factors that we've talked about or touched on with renal disease, diabetes, age, we also know that social determinants and healthcare disparities affect our ability to effectively manage wounds and affect patients ability to get into us in the clinic, be it the wound clinic or their vascular specialist. In your practice, Dr. Cole, or from your standpoint, how can we mitigate some of these disparities and make sure that we're doing everything that we can to overcome some of the disturbing statistics that we're seeing with regard to amputations and healthcare disparities?

Dr. Windy Cole (10:25):

So I've become more interested in population health with my new position at wound tech. Well, I don't know if it's a new position anymore. It's been over a year, but it's fairly new to me. Because we tend to service a patient population that has a lot of decrease to access of care, so I started to, again, become more interested in overcoming these barriers, increasing access to care for patients and overcoming healthcare disparities. And there's an interesting statistic that the environmental conditions which people were born, grow, live, work, that's what we consider their social environment, let's say. And 80% of healthcare outcomes are really dependent on that environment, and it's really just 20% of the involvement of healthcare delivery that really can affect the outcome. So we say it all the time in wound care is we treat the whole patient, not just the hole in the patient, and it's so true and it's never been truer when we look at social economics and patient backgrounds and living conditions and their environment and all of these determinants of healthcare outcomes.

(12:00):

Sometimes we're really quick to say, "Oh, that patient's nonadherent," or, "That patient, they never show up for their appointment," but how often do we really engage the patient to see possibly they're having difficulties with rides to get it to our clinics, or they don't quite understand or they haven't been educated, or maybe English is their second language and we need to help get a translator so that they even understand what we're trying to tell them, or even when we're discussing test results or options for care. So there's a lot of things that go into managing patients that I think we need to actually have a conversation about, and recognizing some of these disparities and these social determinants of health is really important and probably no more important than when we're talking about PAD and really making that diagnosis of arterial issues, because we know that some of our marginalized patient populations are actually more predisposed to have bad outcomes. So African American population versus the white population, they're more likely to undergo a primary amputation.

(13:24):

So why is that? Is it because they have limited access to care? Is it that they're underinsured or uninsured? Is it because they live in areas where maybe they don't have access to a woundologist a wound care specialist or vascular surgeons, or maybe they don't understand or are aware of the necessity of having routine screenings? So there's a lot of things I think we need to, as a clinical delivery team, have a discussion with our patients and really be mindful when we're evaluating our patients, and maybe get out into the communities a little bit more and provide these screenings. And I think that's a good place to start.

Dr. Karen Bauer (14:13):

Wonderful. And I love that you just referred to that team as a clinical care delivery team, because I think especially when you look out at wound management, but also as we start to explore PAD little bit more, we're learning that multidisciplinary team is absolutely crucial, not only recognizing and diagnosing PAD, but appropriately treating it. So making sure that we are involving the whole clinical care team. And as clinicians, we are communicating because I think that helps our patients feel more at ease when they know that their clinical care delivery team is on the same page. And you brought up a great point with regard to, as clinicians, some of the responsibility of us to mitigate those disparities and make sure that we are opening our minds and using a listening ear. And I think that's one place where the American Heart Association National Action Plan comes in is starting to get out into the community and make sure that we are educating patients everywhere.

(15:11):

So with regard to that, you mentioned education and community outreach, some screenings to help address some of these disparities. Can you touch a little bit more on some of the mechanisms for that, helping our patients maybe stop smoking? What can we do with our patients for foot exams, or better management of some other comorbidities? As far as those community outreach programs, things like the National Action Plan, how in your practice have you been successful reaching some of these patients that may not have optimal access?

Dr. Windy Cole (15:46):

Excellent points, and I'm glad to hear about that program. So I think that's definitely a start in the right direction. I know there's other programs too, national and local programs. I would urge all clinicians that are listening to this podcast to really check to see what resources are available for them and their patients in their local area of practice. And I think that's key. It's meeting the patient where they are. Again, there is a vast majority of patients that don't have access to wound care centers or advanced wound care or vascular surgeons, and possibly finding alternative care delivery spaces. So I've seen a trend of really starting to treat patients in their home, and so that breaks down a lot of barriers. That breaks down transportation barriers. A lot of our patients, as you had mentioned, tend to be of advanced age, so they might have ambulation issues, especially if they have lower extremity wounds. They have ambulation issues. They might be in pain. They might be bed bound. A lot of times they're wheelchair bound, so attending appointments is difficult.

(17:09):

So bringing these services into the home, supporting an initiative called aging in place, which I think is really going to be something we see more and more common in the coming years. Patients want to stay in their homes. They feel comfortable in their homes. They're happier in their homes. We haven't even touched on quality of life, and we can have that conversation too. So supporting this aging in place, bringing some of these testing things and technologies into the home, and remote patient monitoring's another thing that really fits into that whole idea of aging in place. But bringing advanced wound care

into the home, and that's something that I've been involved with, again, as my practice changes and evolves. And I think that's really key to getting to really the most at risk patients, and supporting care and making these diagnoses. I mean, really as wound care specialists, oftentimes we are the first ones to actually make the diagnosis of PAD, or even sometimes diabetes and some of these atypical wound ideologies. We find underlying disease conditions the patients don't even know that they had until they see cutaneous manifestations in the way of wounds.

(18:39):

So we are the gatekeepers, and so I think we need to really be in the forefront of this push to providing better care to our patients across the continuum of care. And I think that's where we're going as a specialty.

Dr. Karen Bauer (18:59):

Great points. I think, you touched on some really good things. The transportation, I know in our practice we've been successful with some mini grants on setting up transportation services for our patients. We have advanced practice providers that will go out to the nursing facilities, engaging your home health clinicians. I think you really touched on a good point, and that's again, that team-based care to help us with those disparities. One of the other things that you brought up that interests me, and I want to just touch on very quickly, is the idea of some of the emerging technologies, which you briefly mentioned. But what are some of those things that are emerging now that might help us gain patient access that patients can then get to us and we can improve those outcomes? If you want to just briefly tell us about some of those things that you're seeing in researching that might help when it comes to technology and PAD or wound care.

Dr. Windy Cole (19:52):

Oh yeah. There's so many exciting new, what I call theragnostics. So what is theragnostic? It's a device that is diagnostic, okay, so it could tell us what parameters are off in that wound in that patient at that given time, but then it can also help us determine the appropriate therapy to help to mitigate whatever the biomarker or pathophysiologic problem is going on. So some of my favorites and some of the technologies that I've been involved with research on is near infrared spectroscopy, so that fits this whole idea of trying to diagnose if there's significant perfusion and oxygenation to the tissues. We know that without blood flow and without oxygen, without cellular activity and nutrients, tissue regeneration cannot occur. So near infrared spectroscopy is a handheld device. There are several handheld devices that are in the market currently, and what that can tell us is, by taking an image with this device, it tells us the percentage of tissue oxygenation that's in and around the wound. And again, that we could extrapolate to tell us if we have a proper perfusion.

(21:20):

We know that oxygen travels to the tissues attached to the hemoglobin in blood. So if we see that the patient does not have adequate tissue oxygenation, potentially that means they have an arterial problem and they need intervention by vascular. It can also track the patient, so it makes that diagnosis initially, but then it can also track the patients throughout their care to tell us if regular debridements, offloading, revascularization, certain dressings are helping to increase tissue oxygenation, therefore possibly supporting new vascular regeneration, neovascularization, or granulation tissue formation. So I think that's really an interesting technology that is currently available now that I think will change how we practice. Thermography is another technology, again, handheld. And the interesting thing is these are what I call point of care technology, so they could be used at that moment and we get immediate results. It's not like we take a culture of a wound and we have to wait two, three days, or take a biopsy

and have to wait several days, or even schedule patient for vascular testing and have to wait to get the patient in and to get the authorization from insurance.

(22:53):

These are things we can do at bedside regardless of where we're treating the patient and get immediate results. So the thermography is interesting too, because it could tell us the temperatures of the tissues and the wounded tissues and the surrounding tissues, and possibly be able to indicate if there's low perfusion, or if we see increase in temperature, is there inflammation or possibly infection brewing in that wound. So there's quite a few, and I think that's a whole separate podcast, but those are some that actually fit to evaluation for arterial disease and making certain that we have perfusion that will support tissue regeneration in patients with chronic non-healing wounds.

Dr. Karen Bauer (23:47):

Wonderful. Thank you so much for that discussion. You're really on the cutting edge of things, and I think notifying and helping to understand some of those new technologies that are emerging is definitely going to help us improve the care that we're providing to these patients, like you talked about. So thank you very much. We also have the honor today of having a patient with us. This is a patient that I've actually known for upward of about five years. I have been working with Pam on peripheral artery disease and wounds, diabetic patient, for about that time. Pam has some really, really great input and insight to add. So we're very honored to have Pam with us today. Welcome, Pam.

Pam (24:29):

Thank you.

Dr. Karen Bauer (24:31):

So Pam, as we talk about PAD, from the patient perspective, which is honestly the most important perspective, what did you notice first? What is it that made you first come in to see your clinician when we're talking about your legs and what you've experienced?

Pam (24:48):

Well, it was around Christmas time, and my feet started hurting pretty bad. And when I would look at them, they were starting to turn colors, and I didn't know anything about that. And I finally went to my family doctor, and she looked at my foot and she was really amazed because my toes were black. So she called the wound clinic for me, she knew someone who worked there, and she said I had to be seen. So that was the incident that put me in touch with the wound care.

Dr. Karen Bauer (25:26):

Awesome. So I imagine that first conversation or that first call had to be a little bit intimidating. When you start to have pain or patients are noticing that they have discoloration or swelling or whatever it is that's making them call the clinician, I imagine that's a fairly scary situation. Who did you call first to be seen? Was it your primary care provider? Was it us as your wound care providers? Who was it that you made that first call to?

Pam (25:55):

When it happened, I didn't know anything about wound care. I didn't even know there was such a thing. So I just called my regular doctor, and she decided she would call the wound care center and get me seen.

Dr. Karen Bauer (26:14):

Wonderful. And what made you finally call to be seen?

Pam (26:18):

I guess I got scared, because everything didn't look right. I didn't know all the problems I was having. It's just the toes were... And man, they were funky. They smelled bad, everything. And I said, "I got to have something done," so we decided to go.

Dr. Karen Bauer (26:40):

Perfect. That's such good input. So coming from your perspective, again, when you're facing tissue loss or wounds or pain, as I said, I imagine that was fairly scary. What were the biggest challenges that you faced when you were seeing us for your wounds and your lower extremity symptoms? What was it about that situation that was most difficult for you?

Pam (27:04):

Well, after I saw him the first time, my toes were amputated. And it was a little hard trying to get back my balance and walking, and it messed up my mobility pretty good. So trying to get in and out and to and from was a little bit difficult, because I had to figure out how to stay on my feet and how to get from place to place. And I wasn't able to drive, so that meant trying to find someone to take me. So those were the main things that went with me while I visited the wound care center.

Dr. Karen Bauer (27:51):

Thank you so much for sharing, Pam. Moving forward with that, what advice do you have for other people who might be in your situation and not know who to call or what to do? What can you share with other people who may have wounds, especially if they have a diagnosis or suspect that they might have peripheral artery disease? What is it that you would like to share with other people to help ease their transition and as they treat their wounds?

Pam (28:18):

I just would tell anybody if they have an inkling that something's wrong, go right away. Don't wait. When I found out I had PAD, then I was always... Whenever I got hurt, whenever I had a wound, I decided I have to call right away. So that's what I learned from this whole situation is don't sit on it. Motivate yourself to take care of your body better.

Dr. Karen Bauer (28:47):

Wonderful. Thank you so much for sharing, Pam. We're so glad that you could join us on this. Again, the patient input and coming from the patient perspective is extremely important. No matter what we do as clinicians day in and day out, if we aren't reaching our patients successfully, we need to make sure that we are, as Dr. Cole said, meeting them where they are and making sure that we're fulfilling and meeting their needs as well.

(29:12):

Thank you so much for participating in this podcast with us today. Dr. Cole shared a lot of important points, as did Pam, about peripheral artery disease, especially as it relates to wounds. I want to emphasize that this podcast is a part of the American Heart Association PAD Initiative that is sponsored by Janssen Scientific Affairs LLC and Novo Nordisks Incorporated. In closing, I would like to remind everyone who is listening to encourage your patients to play an active role in their medical care by advocating for themselves and their family members. The views and opinions in this podcast are those of the speakers and reflect the synthesis of science. Content of this podcast should not be considered as the official policy of the American Heart Association. To get additional information, please visit the AHA's PAD website for more education. Again, thank you so much for being here and taking that first step toward mitigating some of these issues and treating peripheral arterial disease, especially in the setting of tissue loss or wounds.