Perspectives on Lower Extremity Peripheral Artery Disease: A Qualitative Study on Early Diagnosis and Treatment and the Impact of Health Disparities

Kathy Jo Carstarphen, MD,[1] Cori Grant, PhD, MBA,[2] John Cuddeback, MD, PhD,[2] Elizabeth Ciemins, PhD, MPH, MA[2]

[1]Oschner Health, New Orleans, LA; [2]AMGA, Alexandria, VA

AMGA Advancing High Performance Health

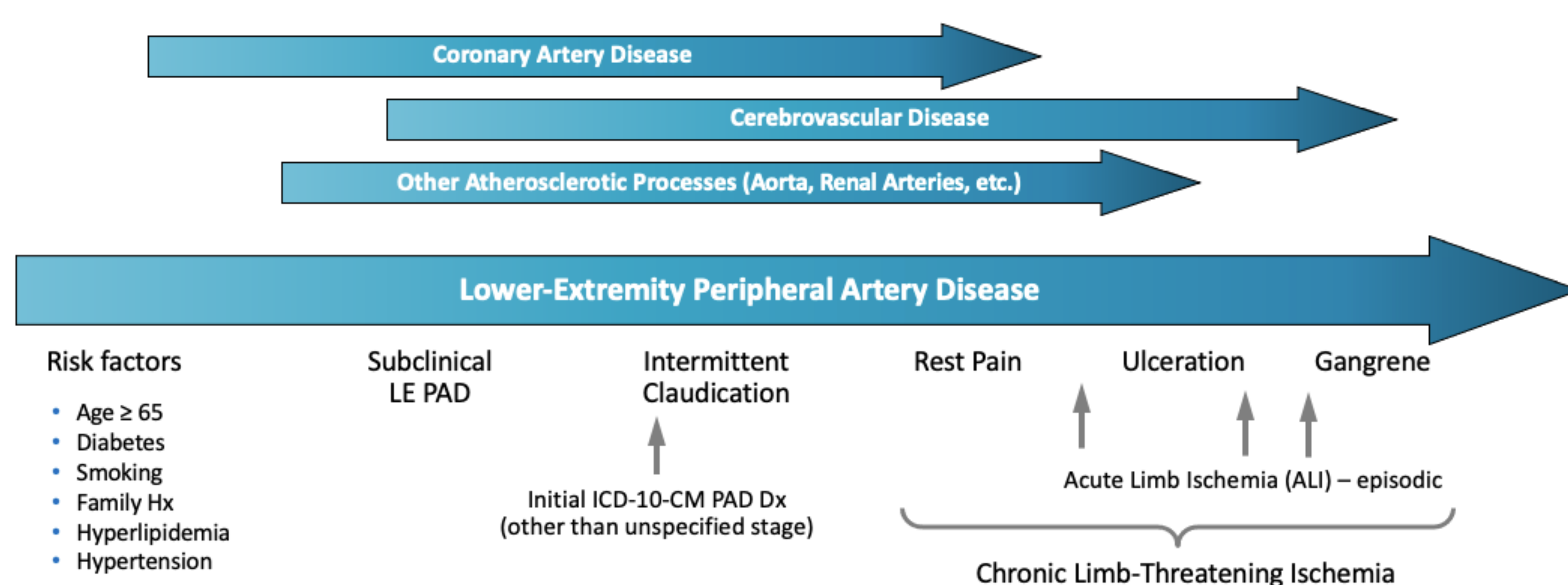
Ochsner Health

Background

- Peripheral artery disease (PAD) is a chronic atherosclerotic disease of the lower-extremity arteries resulting in reduced blood flow.
- PAD can lead to leg pain during exercise and at rest, ulceration, gangrene, and ultimately amputation.
- Poor outcomes are associated with under- and delayed diagnosis, disproportionately affecting racial and ethnic minority groups.
- There are three reasons to focus on early identification of lower-extremity PAD: (1) Medicare added coverage for supervised exercise therapy, in addition to smoking cessation counseling; (2) there is a newly approved medical therapy for PAD; (3) there is an opportunity to improve identified health inequities.

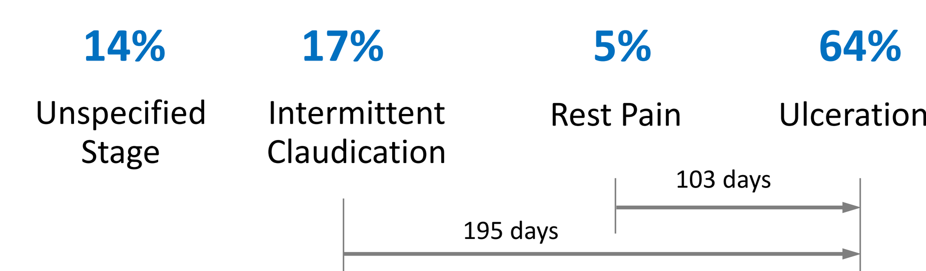
Study Objective: To understand barriers to early detection and treatment of PAD with a focus on racial and ethnic disparities

Figure 1. Underlying pathophysiology and manifestations of PAD[1]



[1] While the disease process that underlies PAD is generally progressive, the symptoms and clinical presentation are notably variable, and individual patients may not experience the classical sequence of symptoms.

Longitudinal records of 30,000+ patients who ultimately had a diagnosis of PAD with ulceration: percentages reflect stage of patient's *first* PAD diagnosis*



*Key takeaway: most patients (64%) were not diagnosed until the late stage of ulceration.

Methods

- Two 60-minute virtual roundtables, Sept. and Nov. 2021
- Six 60-minute semi-structured interviews, Nov. 2021
- A qualitative case study approach and data reduction methods were used to generate themes, make conclusions, and draw actionable recommendations.

Themes, Related Dimensions, Select Quotes

Theme	Dimension	Participant quotes and supporting information
PAD is not a population health priority for organizations	Low reimbursement	• Insurers do not reimburse for screening of asymptomatic patients. • Supervised exercise & smoking cessation not well reimbursed until recently. • In ICD-10, symptoms (intermittent claudication, rest pain) are confounded with Dx.
	Lack of accountability/ education	• Emergency doctors often evaluate for DVT and not PAD. • Lack of specific education on early PAD during training for clinicians and APPs. • Young smokers are missed with their first diagnosis of atherosclerotic disease as PAD.
	Difficult to diagnose	• Physical exam & history taking are critical but are often overlooked at all care levels. • Patients often limit their physical activity to avoid pain making it difficult to obtain a good history. • Structure of Dx codes limits the ability to study/understand/monitor lower extremity PAD.
Detection of PAD is not a focus for primary care	Lack of time and space for screening tests.	• Staffing and space limitations in primary care make ABIs difficult to administer. • PCPs may screen new patients but need reminders for annual evaluation. • Reminders focus on established quality measures and seldom include PAD.
	Lack of guidelines/little benefit/limited education	• No reason to screen for PAD because there has been no evidence-based medical therapy for PAD until recently. • PCPs interpret the USPSTF "I" statement as discouraging screening of asymptomatic patients. • Lack of awareness and willingness to take responsibility exists to diagnosis PAD and treat it effectively.
Lack of ownership for PAD care		• Cardiologists focus on coronary arteries; lower extremities do not get a lot of attention. • Endovascular treatments are owned by different specialties in different organizations. • Cardiology and vascular surgery do not have time to focus on prevention, e.g., smoking cessation, exercise.
Disparities in care	Lack of access to high-quality care	• Health disparities results in lack of crucial follow-up appointments. • Low cultural competence among specialty physicians result in reluctance of patients of color and with low literacy to follow up and their providers to refer them. • Black and Brown patients are disproportionately overtreated and receive unnecessary procedures at community-based sites.
	Social determinants of health	• Low-income patients have difficulty with transportation or taking time off work; consolidation of visits is one solution. • Transportation provided by insurer can take 7 working days to schedule
	Lack of patient education	• Patient education may help mitigate disparities because educated patients will ask questions. • Patients think leg pain is a nerve or muscle because they are not aware of PAD.

"There is no PAD [quality] measure, so it is not an institutional priority outside of billing."

"… until two years ago … if you had hypertension … [or] diabetes … you were on a statin, and so there wasn't really that compelling reason to … diagnose … PAD … [because it wouldn't] alter their quality or quantity of life."

"I'm always reluctant to say that primary care should "own" another disease … they are already way overloaded."

"I experience … overt barriers within the clinic for the patients, the cultural differences of that clinical climate and how the patients are spoken to and how they feel there. I really have to navigate this hospital to find providers that meet the patients where they are and how they feel."

"… people's feet … [are] frequently overlooked … whether they be in primary care or in … cardiology. [Cardiologists] tend to think about the heart and forget about all the rest of the blood vessels."

" … we still have far too many amputations … about half of those patients … have no vascular evaluation whatsoever, prior to the amputation or afterwards … that should be at the very least a mandate—for vascular evaluation of any patient who has an amputation, be [it] before or after, to at least try to prevent … the second amputation, which we know is very likely to follow."

Table 1. Participant Characteristics ($N=18$)

	Male ($n=11$)	Female ($n=7$)	Northeast ($n=4$)	Southeast ($n=6$)	Southwest ($n=1$)	Midwest ($n=5$)	West ($n=2$)
Primary care physician	2	2		2	1	1	
Cardiology[a]	2	1		1			2
Vascular surgery	3	2	2	2[b]		1	
Vascular medicine	3		1			2	
Other[c]	1	2	1	1[d]		1	

[a]Includes interventional cardiology.
[b]Includes 1 clinician in private practice.
[c]Clinical pharmacist, director of managed care, podiatrist.
[d]Organization is a large multispecialty practice.

Identified Health System Solutions

- Financial impact of early PAD management in the context of value-based payment;
- Embed an APP into vascular surgery practice to facilitate evaluation and provide medical therapy;
- Leverage care coordination, multidisciplinary clinics, and telehealth technology to provide comprehensive care for patients with PAD and address disparities.

Conclusions

- A deliberate, focused effort is needed to close gaps and accompanying disparities in early evaluation, diagnosis, and treatment of lower-extremity PAD
- With improved reimbursement and better medical therapies, now is the time to focus on early diagnosis and management of PAD.

To for information contact:
Elizabeth Ciemins, PhD, MPH, MA
(eciemins@amga.org)

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