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Patient perspectives on claudication: An opportunity to improve the adoption and adherence of exercise therapy

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The impact of exercise on perception of claudication among patients with peripheral artery disease (PAD) is a largely understudied area in vascular medicine. Studies that have examined assessments of leg pain among patients with PAD have highlighted claudication as a barrier to walking exercise.[1–3] However, there is not a clear consensus as to why claudication is an impediment to ambulation, specifically when looking through the lens of the PAD patient. If patients are uninformed and believe that leg pain should not be provoked by physical activity, participation in and subsequent compliance with exercise programs will be poor. Thus, assessing how claudication affects a patient, particularly when linked to treatment options and outcomes, may be essential for ensuring optimal uptake and delivery of any PAD exercise program.

In this issue of *Vascular Medicine*, Sharath and colleagues[4] provide the results of a pilot study assessing the influence of fear-avoidance beliefs related to physical activity among patients with PAD and claudication (n=20) who were referred to a vascular surgery clinic. The fear-avoidance model[5] suggests that patients may fear a specific behavior due to negative beliefs and confusion, which ultimately leads to its corollary, avoidance of the behavior. Using this premise, a variety of questionnaires were used to better understand the patients' physical activity levels and claudication experience. Most notably, patients were asked to complete a modified version of the Fear-Avoidance Beliefs Questionnaire[5] to determine if they avoided physical activity because it was perceived to cause harm.

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Additionally, the Physical Activity Scale for the Elderly[6] was used to assess whether fear of exercise was related to patient-reported daily activity. The study findings indicate that the majority of patients were misinformed, and lacked a thorough understanding of the relation between claudication and physical activity. A majority of patients feared exercise was the cause of claudication (n=12/19, 63%), and thought that physical activity would not only make their pain worse (n=18/20, 90%), but would also harm their legs (n=10/18, 56%).[4] Conversely, patients with lower fear-avoidance belief scores expected greater benefit from exercise, and were less likely to believe they should avoid physical activity due to their leg symptoms. While these results are intuitive, providing objective data of a potential psychological mechanism for why leg pain is a barrier to physical activity among patients with PAD is a key contribution of this study. The authors also conclude that there was no relation of patient-reported physical activity levels and fear-avoidance beliefs. Despite this, linking the etiology of pain from the patient's perspective and coupling it to self-reported levels of exercise is an important concept to explore.

PAD treatment awareness: A patient and provider endeavor

The findings of Sharath and colleagues, in certain aspects, build upon the results of a seminal PAD awareness survey by Hirsch and colleagues.[7] Briefly, results of the PAD national awareness survey found that only 26% of the population surveyed was familiar with PAD, and knowledge was poor for those who had some familiarity with the disease. The authors made the following statement that defines the lack of community awareness of PAD while also offering insight into a potential resolution: "When awareness gaps are improved by access to knowledge, an informed patient is best positioned to diminish risk in collaboration with an informed clinical provider."[7] Although educational outreach has made significant strides to inform the public about PAD, the findings of Sharath and colleagues highlight two critical gaps: 1) exercise therapy and its potential benefits for claudication is not completely understood by patients with PAD and 2) healthcare providers may not be explaining the true value of exercise therapy for PAD due to incomplete understanding of the subjective nature of pain that patients with PAD experience. Both gaps can potentially be resolved by simply exploring the patients' perspectives on claudication. The experiential knowledge of the patient is important when discussing exercise, as they face the disease on a daily basis and are tasked with completing the exercise. The fact that exercise training is likely to be painful to the patient is an additional barrier that must be addressed. Thus, a major educational and learning opportunity for both patients and providers exists, and this should be capitalized on in clinical settings.

Different Training Strategies for Different Pain Outlooks

The results of this pilot study establish a starting point for the recognition of pain-related beliefs and fears regarding physical activity among patients with PAD. It is imperative for providers to begin deciphering what claudication means to an individual patient, if exercise training is to commence and succeed. On one hand, the leg pain patients with PAD experience during ambulation could be a motivational factor. When patients fully comprehend the mechanism of claudication and the potential for long-term benefit following exercise training, this may motivate patients to participate and adhere to exercise. Another

view is that claudication is a deterrent to exercise, even when patients understand the cause of their pain, and different approaches for improving adoption and adherence to exercise are required. Thus, consultation of other healthcare providers (e.g., psychologists, exercise physiologists) needs to be considered when defining the treatment plan of patients with PAD.

In conclusion, Sharath and colleagues demonstrate that pain perceptions may negatively impact perception of exercise therapy among patients with PAD. Future research efforts into the influence of pain on physical activity intentions in PAD is needed, particularly looking into a more diverse population, a larger sample size, and evaluating across a spectrum of treatment environments.

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