

# EDITORIAL COMMENT

Adriana Barbosa Pereira<sup>1</sup>, Sofia Viamonte<sup>2</sup>

<sup>1</sup> Physical Medicine and Rehabilitation, Centro de Reabilitação de Alcoitão, Alcabideche, Portugal

<sup>2</sup> Physical Medicine and Rehabilitation, Centro de Reabilitação do Norte, Centro Hospitalar Vila Nova de Gaia/Espinho, Portugal

\* Corresponding author: adrianabpereira@gmail.com

## Supervised exercise therapy versus endovascular revascularization in patients with intermittent claudication

The AHA/ACC 2016<sup>1</sup> and ESC/ESVS 2017<sup>2</sup> guidelines recommend Cardiovascular Rehabilitation programs (CRP) as a multimodal approach for Peripheral Artery Disease (PAD), in order to obtain symptomatic relief, prevent future cardiovascular ischemic events, and influence prognostic survival. CRP include supervised exercise therapy (SET), in addition to optimal medical therapy and lifestyle modification, representing the first-line treatment for patients with Intermittent Claudication (IC), to prevent functional decline and improve quality-of-life.<sup>3,4</sup> SET must be offered as a structured program, involving a multidisciplinary team with expertise in exercise for cardiovascular patients, under the coordination of a physiatrist, that must prescribe the appropriate exercise modalities, taking in to account not only cardiovascular diseases but also other medical conditions that influence exercise performance.<sup>1,3</sup> Exercise intervention in PAD patients is usually based on treadmill and track walking, considered the most effective exercise modalities, performed for 30-45 minutes, 3 times per week for a minimum of 12 weeks.<sup>1,3</sup> Each session involves periods of intermittent bouts of walking to moderate-to-maximum claudication alternated with periods of rest, and a warm-up and cool-down period of 5-10 minutes adjusted periodically as the pain-free and maximal walking distance improves.<sup>1,3</sup> The improvement in the walking time of IC patients parallels with progressive normalization of lipid profiles, emphasizing beneficial effects of exercise therapy in cardiovascular risk factors.<sup>5</sup> SET has demonstrated

to increase ischemic threshold, to improve exercise tolerance and enhance patient functional capacity recognized as a strong and independent predictor of mortality after a cardiovascular event.<sup>5,6</sup> It also highlighted the excellent safety profile of different SET in patients with PAD, when screened for absolute contraindications to exercise and treated by a team with the appropriate skills to provide the adjusted monitoring level.<sup>7</sup>

Endovascular revascularization procedures are readily available techniques, remunerated, and independent of patient motivation. Given their low procedural morbidity and high procedural success they are becoming increasingly attractive and widespread.<sup>4,8</sup> In clinical practice, endovascular treatment alone is being performed more frequently than SET alone, as recommended, despite endovascular techniques do not improve exercise capacity or lower the risk of revascularization or amputation compared with SET.<sup>4</sup> The ERASE trial has demonstrated faster and greater improvements in walking performance and disease-related quality-of-life with the combined therapy (endovascular revascularization plus SET) in patients with aortoiliac and femoropopliteal peripheral artery disease.<sup>8</sup> A recent meta-analysis also demonstrated that combined therapy is associated with greater maximum walking distance compared to each treatment alone, and the 1-year reintervention rate reported also seemed lower compared to endovascular treatment alone.<sup>8</sup> Even though additional SET after endovascular treatment in PAD patients does not

prevent restenosis, they appear to be less symptomatic, highlighting the role of exercise in preventing clinical deterioration.<sup>8</sup> SET alone is associated with a reduction of overall cardiovascular mortality by 52%, therefore, combining endovascular revascularization with additional SET might provide the optimal treatment.<sup>3,8</sup>

Included in a Rehabilitation intervention model, SET is safe and cost-effective for what it should be offered as a first-line treatment alone, or to eligible patients that have undergone endovascular techniques, aiming to improve clinical cardiovascular outcomes and reduce potential re-intervention costs.<sup>3,7</sup>

Despite carrying a class I recommendation for the initial management of IC, major limitations of SET are poor access in most countries due to reimbursement issues, dependence on patient motivation, and compliance.<sup>3</sup> In Portugal, there is still a paucity of Cardiovascular Rehabilitation Units, compared to other European countries, hampering access for patients to this multimodal approach. The lack of knowledge from patients and physicians about these programs also contributes to low referral rates and compromises their widespread use.<sup>9</sup>

The multiple barriers to the implementation of these programs motivate the use of alternatives such as unstructured community- or home-based walking programs that consist of providing recommendations for patients with claudication to simply walk.<sup>1,3</sup> However, these programs without supervision were considered ineffective for patients with IC presenting worse results in maximal treadmill distance and pain-free walking distance compared with SET.<sup>3,10</sup> Whenever SET is not available, the AHA/ACC 2016 Guideline recommends structured Community-based Exercise therapy or Home-based Exercise therapy with the guidance of healthcare providers.<sup>1,3</sup>

Future studies are needed, focusing on multidimensional approaches and clinically relevant long-term outcomes, to determine the most effective management strategy for these patients. Consideration on reimbursement issues for SET and greater awareness of the medical community on the importance of referring patients to CRP might be critical to improving adherence to these programs.

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