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Editorial

Charting the Course and Uncharted Territories: SCAI 2025 Guidelines for Chronic Venous Disease

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Chronic venous disease (CVD) encompasses a spectrum of conditions resulting from chronic venous insufficiency, ranging from milder symptoms such as edema, skin discoloration, and discomfort to more severe complications such as chronic venous ulcers. Although often neglected, CVD is a widespread condition, affecting approximately 20% to 25% of adults globally, and over 25 million adults in the United States alone.[1,2] The prevalence of CVD increases with age and disproportionately affects women, likely due to hormonal factors and pregnancy. Other contributing factors include genetics, aging, obesity, prolonged periods of standing or sitting, and a history of deep vein thrombosis.[1] This disease also imposes a significant economic burden, with an estimated 2.2% of Medicare beneficiaries experiencing venous ulcers, resulting in an annual cost of $14.9 billion.[3]

Conventional approaches such as compression stockings and lifestyle modifications face challenges with patient compliance due to discomfort and the lack of immediate visible improvement.[4] Additionally, recovery times following surgical interventions such as vein stripping or sclerotherapy can be prolonged and are often associated with significant postoperative discomfort, hindering patients' ability to return to their normal activities.[4] These conventional methods may also fail to address the underlying causes of venous insufficiency, leading to recurrence and the need for ongoing management.[4]

With the rise and adoption of low-risk endovascular interventions, there is the need for an evidence-based clinical guideline document to aid clinical decision making and improve patient outcomes. The 2025 Society for Cardiovascular Angiography & Intervention (SCAI) Clinical Practice Guidelines for the Management of Chronic Venous Disease[5] and accompanying technical review[6] are timely documents developed by SCAI.

The SCAI guidelines provide 9 consensus recommendations for management of CVD. Compression therapy remains a strong recommendation for patients with venous ulcers as it reduces venous hypertension, improves circulation, and promotes wound healing. The guidelines also recommend ablation therapy for patients with symptomatic great saphenous vein reflux as a minimally invasive alternative to surgical stripping. Additionally, foam sclerotherapy is advised for varicose veins without axial vein reflux, while phlebectomy is recommended for recurrent symptomatic varicose veins. For individuals with deep vein pathology, stenting and venoplasty are recommended for iliocaval venous obstruction, with a strong emphasis on intravascular ultrasound to assist in lesion evaluation and stenting.

The SCAI guidelines also recognize 4 areas of knowledge gaps that were identified in the technical review: the role of phlebectomy in the presence of venous ulcers, the management of symptomatic perforator reflux without ulcers, and the effectiveness of endovenous interventions in postthrombotic syndrome in isolated femoral or in common femoral veins.

While these guidelines represent a contemporary approach, they are inherently limited by the need for an evidence-based foundation, which does not yet fully incorporate emerging technologies. Innovations such as endovenous microwave ablation and mechanochemical ablation, which combine chemical and mechanical vein destruction, have shown promise in reducing periprocedural discomfort and speeding recovery. Additionally, artificial intelligence and wearable technology could play a critical role in monitoring circulatory health, detecting early signs of venous insufficiency, and prompting timely interventions.[7,8] The future may also see the development of more precise treatment algorithms and risk-assessment models, potentially not only enhancing therapeutic outcomes but also minimizing adverse effects. In the same vein, the advent of customized 3-dimensional–printed venous stents, designed for individualized fit, may improve long-term patency and therapeutic efficacy by offering enhanced biocompatibility and bioresorbable platforms.

These guidelines represent an important milestone in the right direction—they are halfway between the available scientific evidence and a consensus (expert) document, evaluating what is known and

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charting the course for the unknown. While the recommendations in these guidelines are standardized, the importance of shared decision making and individualization of therapy when applying these guidelines should be underscored as 1 size rarely fits all.

This is an exciting time for the field of endovascular interventions. The rapidity with which this field is evolving may require an updated document sooner than we anticipate.

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