Exploring Nonsurgical Management of Chronic Venous Insufficiency

Reflections on a recent *NEJM* publication highlight the importance of identifying and addressing the pathologic process of venous hypertension for optimizing clinical improvement in chronic venous insufficiency.

With Eri Fukaya, MD, PhD, FSVM, and Raghu Kolluri, MD, MS, RVT, MSVM

Encompassing a variety of symptoms and clinical manifestations, chronic venous insufficiency (CVI) increases the risk of venous thrombotic events and comes with substantial limitations on quality of life. In a Clinical Practice paper published in *The New England Journal of Medicine (NEJM)*, Drs. Eri Fukaya and Raghu Kolluri provide a comprehensive overview of the nonsurgical management of CVI, outlining the concept of functional and structural insufficiency, sharing insights for diagnosis, and explaining and providing evidence for various treatment strategies.[1]

As summarized in *NEJM*, CVI is primarily caused by venous hypertension, which can be structural (venous reflux or obstruction) or functional (elevated central venous pressure, dependent edema, weak calf muscle, or obesity) in nature, or both. Diagnosis is based on both the patient history and the physical examination, as well as duplex ultrasound evaluation for assessing for structural causes.

Importantly, understanding and addressing the specific pathologic process of venous hypertension is crucial for both guiding appropriate therapy and having clinical improvement. Conservative or interventional/surgical treatment should be aimed at reducing symptoms, rather than physical exam or ultrasound alone.

In an interview with *Endovascular Today*, the paper's authors expand on these diagnosis and management discussions and reflect on the potential impact of this *NEJM* publication for both nonvascular and vascular physicians.

What are the main misconceptions or myths surrounding CVI and its management? What are the real-world ramifications?

We believe there are several common misunderstandings about CVI in the general medical community.

- **Misconception 1: CVI is a problem of venous reflux detected on duplex ultrasound examination.** Although this is true, the true pathology is venous hypertension, which can be due to venous reflux, but the elevated pressures can also be due to other factors. Thus, you can have CVI without venous reflux.
- **Misconception 2: Treatment of CVI is to correct the venous reflux with venous procedures.** Venous procedures can be indicated for structural disease; however, they are not effective for functional disease.
- **Misconception 3: CVI (varicose veins) is mostly a cosmetic problem and may be unworthy of treatment.** Although there can be problems that are purely cosmetic, many patients have symptoms that limit their lifestyles and should be addressed.
- **Misconception 4: CVI treatment consists of compression therapy and venous procedures.** We need

to consider all factors contributing to venous hypertension; some of these can be managed medically.

These misconceptions can cause delays in care, and additionally, some clinicians believe that invasive procedures are always necessary and disregard effective conservative treatments. CVI is also mistakenly seen as limited to the elderly or solely genetic, ignoring its prevalence in younger individuals and the influence of other factors such as obesity and central venous hypertension. These misconceptions, along with the overemphasis on interventions, result in inconsistent care that ranges from undertreatment to excessive and unnecessary procedures, inflating health care costs and exposing patients to risks while neglecting underlying causes and delaying holistic, patient-centered management.

How does identifying the cause of venous hypertension impact your treatment decision?

Identifying the cause of venolymphatic hypertension is essential for managing CVI, as treatment significantly varies depending on the underlying problem. For example, ablation of a refluxing saphenous vein may benefit a patient with a venous ulcer, but it is unlikely to help an obese patient with bilateral leg swelling caused by untreated right heart failure, obstructive sleep apnea, or phlebolymphedema. Effective CVI management, like any medical condition, requires a comprehensive plan focused on treating the patient as a whole—not merely addressing a refluxing superficial vein or an obstructed deep vein.

What is your ultimate goal when treating a patient with CVI, and how do you communicate that with the patient?

My ultimate goal is to understand the patient's expectations and focus the initial discussion on those goals—whether it's ulcer healing, pain control, managing venous eczema, or improving appearance. Understanding patient goals and setting realistic expectations is paramount. This is communicated in simple terms, starting with, "What are you hoping to achieve from this visit, and what do you expect once your vein issues are treated?" These conversations are then documented in the clinic notes and often referred back to at follow-up visits to reinforce our mutually agreed-upon expectations.

What are the top unanswered questions when it comes to nonsurgical management of CVI? What do you think should be the next priorities for research?

The understanding of the venolymphatic system's role in edema has evolved significantly over the past decade. Despite this progress, managing phlebolymphedema remains challenging for many practitioners, with treatment approaches varying widely. Continued research in this area is essential.

What is the potential impact of reaching the *NEJM* audience with the specifics regarding CVI? How do you hope to see it inform clinical practice and the conversations surrounding managing these patients, both beyond and within the vascular world?

The *NEJM* is highly influential and has a broad reach among various medical specialties, including cardiovascular specialists, other internal medicine subspecialists, and primary care physicians. The last Clinical Practice article on CVI in *NEJM* was published in 2009 by Drs. Seshadri Raju and Peter Neglan.[2] Since then, our understanding of venous disease has significantly advanced. A new Clinical Practice article on this topic serves several important purposes: (1) Increase awareness among primary care and nonvascular medical specialists, (2) update young vascular specialists, and (3) offer a comprehensive review for practicing venous specialists. The article aims to keep the patient at the center of care by introducing the concept of structural and functional venous hypertension, helping practitioners better understand and manage their patients' conditions. This should then contribute to improving patient care and outcomes in this widely prevalent condition. ■

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2. Raju S, Neglén P. Clinical practice. Chronic venous insufficiency and varicose veins. N Engl J Med. 2009;360:2319-27. doi: 10.1056/NEJMcp0802444

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