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## Venotonics: Reducing Symptoms of Venous Insufficiency



By Robert C. Kiser, DO, MSPH

Venotonics, also known as venotropics or phlebotropics, are a class of medicinals that have effect on veins and are used to alleviate venous diseases and disorders and particularly venous insufficiency. No venotonic has been shown to cure venous insufficiency or to be as effective as surgical ablation to improve the symptoms of venous insufficiency, but several have been shown to reduce the symptoms of venous insufficiency to a clinically significant degree.

### Butcher's Broom Extract (Ruscus aculeatus)

Butcher's broom extract (BBE) appears to reduce the diameter of varicose veins in vitro.<sup>1</sup> BBE is available in the United States without a prescription as an herbal supplement. It is hypothesized that the mechanism of

action for BBE may be via increasing cyclic adenosine monophosphate (cAMP) levels within the veins.<sup>2</sup> Because of its ability to increase vein tone, it may have some benefit as a treatment for

orthostatic hypotension.<sup>3</sup> Symptomatic improvement in heaviness, fatigue and altered sensations in patients taking butcher's broom for venous insufficiency is correlated with reduced volume of blood within the varicosities.<sup>4</sup>

### Horse Chestnut Seed Extract

Horse chestnut seed extract (HCSE) has been used in traditional medicine as a treatment for varicose veins. In their 2002 systematic review of previous studies for the Cochrane Collaboration, Pittler and Ernst found that there was

evidence, based on placebo controlled studies, that HCSE reduced the symptoms of venous insufficiency and that HCSE is a reasonable, short-term treatment for venous insufficiency.<sup>5</sup>

The mechanism of action of HCSE is believed to be via alteration of the transcapillary filtration in a manner favoring edema reduction.<sup>6</sup>

There is one case report of a patient

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## VENOUS Review

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# Seniors and Wound Care



By Arun Chowla, MD

Wounds can be acute or chronic. Acute injuries are the result of a trauma – accidental, minor or major. Chronic wound, on the other hand, are defined as a non-healing breaking in the skin. Chronic leg ulcers are defined as those that show no tendency to heal after 3 months of appropriate treatment or are still not fully healed at 12 months. Extension of ulcers may involve tendons and bone with considerable morbidity. In rare occasions they may require amputation.

Leg ulcers are a common condition in the elderly, often due to poor circulation in aging limbs. There are three main causes of leg ulcers: venous disease, arterial disease and neuropathy. Other contributing factors include trauma, diabetes, autoimmune disorders, cancer and decreased levels of zinc, iron, folate, albumin, vitamin C and selenium.

Vein disease is one of the common causes for non-healing wounds in the legs; 70% of ulcers in the US are from venous or mixed venous/arterial etiology. In elderly patients, diabetes and obesity are common factors.

## Symptoms

Leg ulcers may appear after an unrelated event, such as bumping into a chair or other minor cut or bruise, but continue to persist or increase in size. Patients present with a non-healing sore, recurrent bleeding from a minor sore, hyperpigmentation around the sore or ankle area, malodor, pain/burning/heaviness, or associative cellulitis (redness and swelling).

Effects on patients lifestyle may include chronic pain, disability such as inability to walk, exercise or swim, open sore, local hygiene, social stigma and resultant psychological effects

## Wound Care Treatment At A Glance

### Local Wound Care

- Debridement of dead/necrotic tissue
- Decrease bacterial burden
- Hydrophilic dressings- sodium alginate
- Provide a moist healing environment
- Use of wound stimulators regrenex
- Skin grafting

### Pressure Offloading Treat Venous Insufficiency

- Compression stockings
- Venous Ablation- improve venous return
- Terminal interruption of reflux source / Ultrasound guided foam sclerotherapy
- Medication: Pletal

### Treat Arterial Disease

- Angioplasty
- Bypass
- Medications: Pletal

### Supplemental Vitamins and Minerals

#### Foot Care

##### Diabetics

- Foot care as important as face care
- See podiatrist regularly- nails, ulcers, infection
- Check for diabetic neuropathy- quick skin sensation test, vibration test
- HbA1c

### Management of Lymphedema

- Decongestive massage
- Compression garments
- Lymphedema pump

like depression. Leg ulcers also can represent a drain on medical resources.

Elderly patients with leg ulcers will benefit from assessment of their vascular status (Arterial and Venous) as it will determine the type of treatment required. If the pulse exam shows good bilateral ankle pulses, no further arterial testing is needed. Arterial Doppler with ankle brachial index should be done for any equivocal pulse exam. Venous evaluation with color duplex ultrasound should be done in all lower extremity ulcerations.

## Treatments

Initial treatment involves local wound care and compression therapy – graduated compression stockings, ace wraps, etc. Many patients with conditions like arthritis are unable to wear compression garments as they are tedious and difficult to wear. Alternatives include ace bandages, Velcro garments and zipper stockings which are custom fitted at our center.

Definitive management is beneficial for underlying venous and arterial disorders. There has been a paradigm shift in management of venous ulcers with the advent of minimally invasive Endovenous Ablation with Laser and/or Radiofrequency. The procedure requires only local anesthesia, less operative time and are done as an outpatient procedure. Therefore patients are able to heal and return to work earlier compared to the conservative approach with compression stockings.

Deep Venous disease may require further evaluation with intravascular ultrasound and/or venography and may require venoplasty. Arterial Disease can be treated with angioplasty, laser atherectomy or stents. Extensive arterial disease may require bypass surgery (femoral-popliteal or distal bypass). Associated



## Seniors and Wound Care

Continued from Page 2



swelling may be due to lymphedema and circulation may be improved by decongestive massage and lymphedema pumps, which are usually covered by insurance.

With many elderly patients, traditional treatments can be difficult due to inactivity. Since many elderly people spend a majority of their time sitting, one of the best remedies is to keep their legs elevated, preferably above the heart.

The effects of oral drug therapy for venous and arterial disease have been disappointing. Local dressings are important in ulcers that are not suitable for compression therapy. The choice of dressing depends on the nature of the ulcer and the tolerability of the dressing for the patient.<sup>1</sup>

In summary, leg ulcers have multiple causes, but the top three are venous disease, arterial disease and neuropathy. Early

intervention is key to decreasing dead/necrotic tissue. Venous disease is the most common cause of leg ulcers, and is easily treatable with outpatient procedures that shorten wound care time and decreases recurrent ulcers. Treating associated lymphedema also can help. In the case of diabetic patients, foot care also is essential.

#### Footnote:

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## CME Courses & Events

Have you attended one of our CME events? We're proud that since its 2010 inception, our team has conducted an average of two sessions per month across our network in Maryland, northern Virginia, Washington, D.C. and western Michigan. And, most recently, we've held a session in Stamford, Connecticut, one of our newest communities.

Our CMEs on venous insufficiency are conducted by Center for Vein Restoration physicians and staff. When you first join us you'll notice a difference from other sessions you may have attended. First, we respect your busy schedules, so we tend to hold our CMEs in the evenings. We start with a nice dinner and networking and follow that with information on the diagnosis and treatment of patients with venous insufficiency. We discuss classification of VI, the use of duplex ultrasound to screen patients, the use of modern ablation techniques like radiofrequency and laser, visual sclerotherapy and more as part of a full spectrum of care available to your patients.

Our attendees give us high marks for their experience – in fact, our recent event in Silver Spring Maryland broke our attendance record with 78 physicians. When surveyed, attendees gave us kudos for providing a collegial atmosphere and unbiased content, and many said the information could lead to improved health for their patients.

At the end of each presentation, participants can expect to understand the etiology, diagnosis and clinical presentations of venous disease, evaluate differential diagnosis in patients with multiple symptoms, and learn about current treatment options and disease management. Each CME course is valued at 3.0 credits.

CMEs will continue in 2014, with possible new modules being added to cover questions we hear from our referring doctors, such as restless legs syndrome and pelvic congestion syndrome.

*For more information, please contact Chelsea Gates, Director of Sales and Physician Liaisons [chelsea.gates@centerforvein.com, 240-965-3200.]*





# Venotonics: Reducing Symptoms of Venous Insufficiency

Continued from Page 1

with renal angiomyolipoma (AML), a condition known to spontaneously rupture and bleed, who was taking HCSE. The patient experienced a potentially life-threatening rupture of her AML, and her emergency physician felt this was potentially a side effect of the patient's use of HCSE. It is not clear that HCSE has the anticoagulant effect the author claims.<sup>7</sup>

## Diosmin, Diosmiplex, (Vasculera)

Diosmin glycoside is a flavonoid occurring naturally in citrus plants and can also be derived from hesperidin, a constituent found primarily in oranges. Internationally it is available as a highly purified flavonoid fraction. In the United States it is available as a prescription medication (brand name Vasculera). The generic name for Vasculera is diosmiplex and it is a highly purified flavonoid fraction combined with Alka4-complex, an alkalinizing agent. The addition of the alkalinizing agent is thought to buffer stomach acid and blood pH and thereby combat metabolic acidosis within varicose veins.

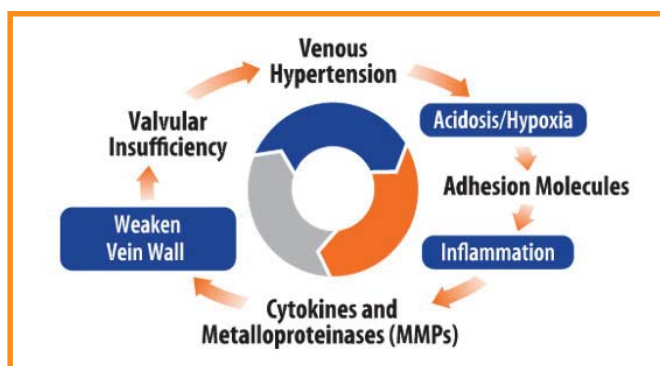
Diosmiplex is classified as a "medical food." The classification of "medical foods" was established by the 1988 Orphan Drug Act and is defined as "a food which is formulated to be consumed or administered enterally under the supervision of a physician, and which is intended for the specific dietary management of a disease or condition for which distinctive nutritional requirements, based on recognized scientific principles, are established by medical evaluation." (source: 21 U.S.C. sec. 360ee(b)(3).-[from the Orphan Drug Act, 1988]). Because the constituents are derived from commonly eaten foods, the medicine is Generally Recognized as Safe (GRAS). The most common side effect of diosmin is dyspepsia, and this is likely another reason for the addition of the Alka4-complex to the product.

The medicine is currently FDA approved for chronic venous insufficiency presenting as hemorrhoids and varicose veins. For acute hemorrhoids, diosmiplex is given three times a day for 4 days and twice daily for 9 days. For varicose veins, edema, stasis dermatitis and venous ulcers, diosmiplex is given once daily as a 630mg dose (600mg of diosmin is combined with 30mg of alka4-complex in each tablet). Although improvement may occur within the first week of treatment, 4-8 weeks may be necessary to see clinical improvement.<sup>8</sup> The mechanism of action for diosmiplex is at several areas of the pathophysiology of venous insufficiency, varicose veins, venous hypertension and the microscopic pathways that lead to the skin changes associated with venous disease.

The alka4-complex is used to address the acidosis in the

microvasculature. Diosmin itself helps to increase lymphatic and capillary permeability and reabsorption of fluid, decreasing interstitial fluid and hence edema. Reduction of capillary permeability and inflammation in turn may also decrease healing time for ulcers. Additionally, diosmin has been shown to affect the metabolism of norepinephrine and prolong the contraction of varicose veins.<sup>9</sup> In one study diosmin was shown to improve clinical signs, quality of life, and CEAP stage in 65 of 80 test subjects with venous insufficiency during a 30-day trial.<sup>10</sup> In vitro, diosmin appears to have antioxidant, anti-inflammatory and antiproliferative effects.<sup>11, 12</sup>

There has been one case report of a patient who was on diosmin (an over-the-counter formulation) for several years and who was subsequently placed on warfarin. Six weeks after initiation of the warfarin, the patient developed a spontaneous interventricular bleed, which the attending physician felt might be related to the combined use of diosmin plus the addition of warfarin.<sup>13</sup>



Source: Primus Pharmaceutical, Inc.

Venous insufficiency is a chronic condition—and therefore medical management alone requires an indefinite period of continuous treatment to maintain improvement. The requirement of prolonged and indefinite medical treatment may be acceptable in some special populations, such as those whose health is frail, those who have deep venous reflux, those who have severe phobia or additional medical considerations contraindicating surgery. For most

patients, venotonics can be a useful adjunct to more definite surgical ablation of incompetent veins.

### Footnotes:

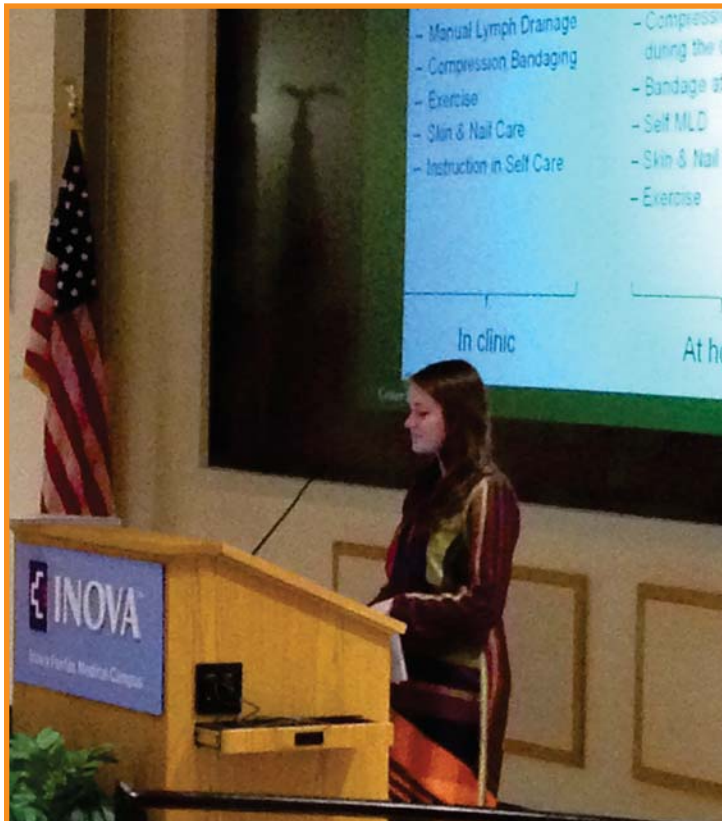
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# CVR Presents Case Study to Washington, D.C. Dermatology Conference

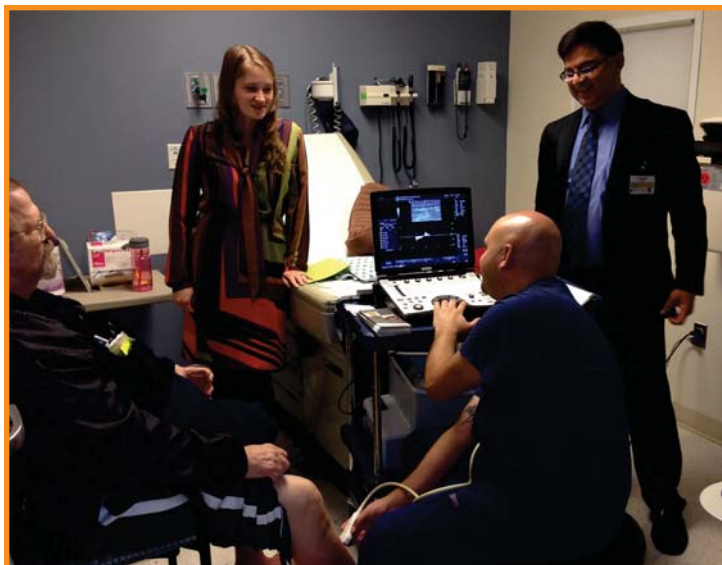
Center for Vein Restoration was proud to participate in the recent Washington, D.C. Dermatological Society's Fall Clinical Conference Oct. 26 in Falls Church, Va. The conference was a half-day medical meeting that was attended by approximately 100 dermatologists as well as physician assistants and nurse practitioners who specialize in dermatology. The overarching goal of the conference was to update the practicing dermatologist and generalist in topics that could improve patient care.

The conference was a hands-on symposium involving live patient case studies and pathology analyses. CVR physician Arun Chowla, MD FACS and occupational therapist Nicole Lawson presented a case study of a 67-year-old male venous insufficiency patient presenting with a left calf ulceration, pain and heaviness and associated itching. Physicians were told about the patient's diagnosis and treatment, including evaluation with Duplex Ultrasound.

The interactivity of the conference provided physicians with practical information regarding rare dermatologic conditions, as well as common problems that manifest themselves in unique ways. Attendees were able to evaluate diagnostic testing and imaging in dermatology, while physicians and other healthcare providers enjoyed the opportunity to consider current standards of care, as well as recommendations for optimizing patient care.



CVR Lymphedema Therapist Nicole Lawson addresses the Washington, D.C. Dermatological Society conference



CVR patient Mr. Gerald Evans, CVR Lymphedema Therapist Nicole Lawson, CVR Vascular Technician Dave Lakham and CVR physician Arun Chowla, MD

## Patient Case Study, Ulcers



Case study photos courtesy CVR patient Mr. Gerald Evans



# Q & A



In each issue of the Venous Review, members of our medical team answer questions we've received from referring physicians.



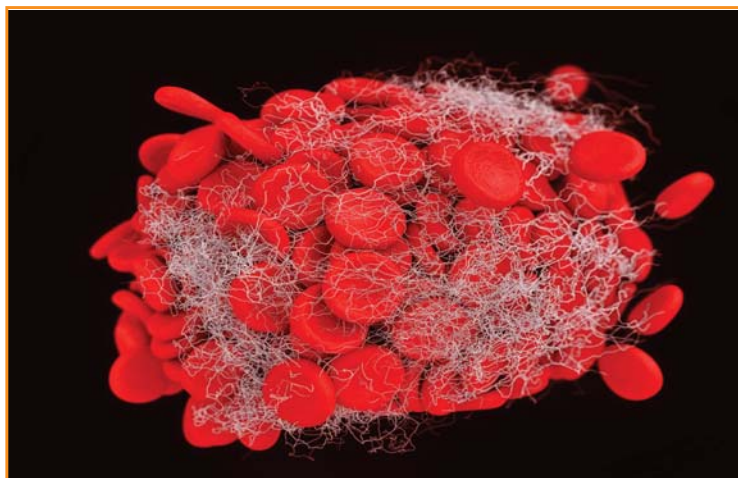
This issue's guest Q & A Editors are Frank Sbrocco, MD & Henry Meilman, MD

**Q:** "Why should I send patients to a vein group when they could be treated for both the veins and arterial side with a vascular group? Do vascular groups have the same capabilities for treating veins?"

**A:** As with all medical and surgical practice, expertise arises from education, dedication, fascination, and specialization. While there are certainly practitioners who are excellent at treating many aspects of venous disease, CVR is dedicated to the treatment of venous disease. Because of this, we have all of the necessary tools (radiofrequency, laser, sclerosants) to treat virtually any condition. Most practices invest in a single modality and don't have the flexibility to treat what we do. CVR provides complete vein treatment. In addition, CVR invests heavily in peer review to assure that all patients are treated appropriately according to the most recent guidelines recommended by the Society for Vascular Surgery and the American Venous Forum. In addition, our staff is continually trained in the latest diagnostic techniques and specializes in venous disease. We work closely with many specialties to provide the best venous care. In fact, some vascular specialists choose to send their patients to us. These are a few of the reasons we are a national authority in vein treatment. In addition to CVR's ability to comprehensively treat venous hypertension in the lower extremities, CVR also is capable of the evaluation and treatment of lymphatic disease and supra-inguinal vein disease.

**Q:** "What is the difference between DVT and EHIT?"

**A:** Endovenous thermal ablation is an accepted method of treatment for superficial vein reflux with a relatively low incidence of procedure-related complications. Deep venous thrombosis (DVT) is the formation of a thrombus within the deep venous system and is a recognized complication associated with less than 1% of endovenous ablation procedures. Endovenous heat induced thrombus (EHIT) is an expected result of endovenous ablation of an incompetent superficial vein. During the thermal ablation, the endothelial lining of the vein is damaged, thus causing an inflammatory reaction. Thrombotic occlusion subsequently occurs, which then leads to fibrosis and effective closure within the superficial



venous system. In less than 0.5% of endovenous ablation procedures, the thrombus produced propagates in close proximity to or extends into the deep venous system and the EHIT is then classified according to the thrombus extension. The classification for EHIT propagation within a superficial vein to a deep vein is as follows:

- **Class I:** Venous thrombosis to superficial deep junction (SFJ of SPI), but not extending into deep system.
- **Class II:** Non-occlusive venous thrombosis, with an extension into deep system of a cross sectional area less than 50%.
- **Class III:** Non-occlusive venous thrombosis, with an extension into deep system of a cross sectional area greater than 50%.
- **Class IV:** Occlusive deep vein thrombosis of common femoral /popliteal vein.

All patients at Center for Vein Restoration undergo routine duplex imaging within 2-7 days post endovenous ablation procedure. If EHIT I or II is identified, serial duplex imaging weekly with observation will be performed until thrombus regression into superficial vein is noted. Antiplatelet therapy may be initiated, with Plavix most probable in case of EHIT II. If EHIT III or IV is identified on duplex scan, low molecular weight heparin (LMWH) is initiated and continued, along with weekly duplex imaging and evaluation, until thrombus regression to EHIT I or complete resolution. The potential for further thrombus propagation after the initial post procedure documentation of EHIT is low. In most patients, the thrombus usually remains stable initially and regresses or completely resolves within 10-14 days. Larger superficial vein diameters, concomitant multiple phlebectomy and thermal tip position appear to be associated with EHIT propagation, but further investigation of risk factors continues.

EHIT appears to behave differently than a spontaneously occurring deep vein thrombus (DVT) and may be an ultrasound finding without clinical significance. However, at Center for Vein Restoration, all patients presently undergo post endovenous ablation procedure duplex imaging within 2-7 days per protocol to identify an EHIT or DVT potentially requiring observation or intervention.

DO YOU HAVE CLINICAL QUESTIONS FOR OUR TEAM? PLEASE LET US KNOW. SUBMIT THEM TO MANAGING EDITOR KATHLEEN.HART@CENTERFORVEIN.COM.

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## VENOUS Review

THE OFFICIAL JOURNAL OF CENTER FOR VEIN RESTORATION

2013 has been a year of change in healthcare, not the least of which is the recent enacting of the Affordable Care Act. And, while its introduction has raised some challenges, inside the health arena we need to look at what it means to clinicians and our own patients. From our perspective, we can foresee that with more access to insurance, patients who may not have been able to attain care for chronic venous insufficiency can now receive the proper treatment they require. As we continue to expand our practice, we're pleased to be able to accommodate these new patients in more communities and look forward to helping provide better quality of life to people at all points in the economic spectrum.

2013 was a year of continued growth overall at CVR, both in the number of our clinical locations but also a growth in the number of kinds of outreach to connect with the community. We're quite proud of the LegsWork program, which, begun this year, already has resulted in our talented vascular technicians conducting free vein screenings in schools, senior centers and more. Additionally, our physicians have continued outreach to diverse patient communities – just in 2013 we've presented at or sponsored events in several, underserved, ethnic communities and look forward to continued community relations in 2014.

In this issue of Venous Review, we look at another community, seniors, who account for the greatest percentage of varicose vein cases in the United States. In particular, we look at leg ulcers, a common but treatable ailment common to seniors. We also look at the growing trend in venotonics, as well as report on our recent presentation at a Washington, D.C. dermatology conference.

We look forward to facing both the challenges and successes in 2014 and continue to be proud of our relationships with the wider medical community – our referring doctors – without whom we could not make the difference we hope to make in the lives of our patients across Maryland, Virginia, Washington, D.C., Michigan, New York and beyond. We wish you a happy holiday season and a happy, healthy New Year.

Yours in good health,

Robert C. Kiser, DO, MSPH

Editor

