same number of procedures per patient as other physicians (2.37 ± 1.39 vs 2.73 ± 2.03; $P = .964$) but did this for fewer cases (1.41 ± 0.62 vs 1.86 ± 0.97; $P = .002$; Fig 2).

Conclusions: Vein surgery practice patterns differ between vascular surgeons and other physicians. This study found that vascular surgeons perform surgery for more severe venous disease than other physicians. It also found that vascular surgeons do so in a more cost- and time-efficient fashion by performing a similar number of procedures in a smaller number of cases per patient. Further study is necessary to determine the impact of this difference in practice patterns on patient outcomes.

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Initial Results of a Clinical Feasibility Study for Endovenous Deep Venous Valve Formation to Treat Chronic Venous Insufficiency

Thodur Vasudevan,[1] Ramon L. Varcoe,[2] David A. Robinson,[3] Andrew A. Hill,[4] Andrew Holden[5]. [1]Vascular Surgery, Waikato Hospital; [2]Vascular Surgery, University of New South Wales and Prince of Wales Hospital; [3]Royal Prince Alfred Hospital; [4]Vascular Surgery, Auckland City Hospital; [5]Interventional Radiology, Auckland City Hospital

Background: Chronic venous insufficiency (CVI), due to superficial and deep venous reflux (DVR) and venous obstruction, is widespread and associated with significant morbidity. DVR correlates with increased symptoms. Historically, therapeutic approaches to DVR involved difficult and morbid surgical procedures or unsuccessful attempts to implant valves. The study objective was to assess the safety and effectiveness of endovenous formation of autogenous deep vein valves in patients with DVR and significant associated symptoms. The study is ongoing, and results are presented for the first 10 treated patients.

Methods: Patients with DVR and correlating symptoms of CVI (Clinical, Etiology, Anatomy, and Pathophysiology [CEAP] class C4-C6) were treated with an endovenous autogenous valve formation system in four centers in New Zealand and Australia. Patients with outflow obstruction were excluded. Retrograde percutaneous access was obtained through the common femoral vein, and contrast venography and intravascular ultrasound were used to assess reflux and to identify potential treatment sites. If the patient was deemed eligible, the 16F study device was introduced and used to form monocuspid valves in femoropopliteal vein segments spanning 7 to 11 mm in diameter. Intravascular ultrasound and venography were used to assess valve functionality. Postprocedurally, patients were prescribed 7 days of low-molecular-weight heparin injections, followed by 6 months of anticoagulation. Follow-up included duplex ultrasound scan, physical examination, and questionnaires. Deep venous thrombosis (DVT) was defined as a treated vein found to be noncompressible with visible echogenic thrombus or dilated with decreased flow by ultrasound. Mural thrombus was a deposition that did not fit the DVT criteria.

Results: The patients were clinical class C4 (n = 3), C5 (n = 2), and C6 (n = 5) and of both primary (n = 8) and secondary (n = 2) etiology. One or more monocuspid valves were successfully formed in 9 of 10 patients. One valve formation was completed in four patients, two formations in four patients, and three formations in one patient; the anatomy did not accommodate successful valve formation in one patient. Follow-up ranged from 30 to 210 days with a median of 30 days. During this time, no occlusive DVTs were reported, and adverse events related to the device or procedure included access site-related events (n = 7) and mural thrombus (n = 3). All mural thrombi resolved by 90 days. At 30 days, there was a median change in reflux time (seconds) in the proximal femoral vein of 0.3 (−1.9 to 4.3), in the distal femoral vein of 0.4 (−1.4 to 5.6), and in the mid popliteal vein of 0.2 (−3.3 to 6.7). Seven of 10 patients had a ≥4-point improvement in the Venous Clinical Severity Score.

Conclusions: Endovenous valve formation in the deep venous system is feasible. Initial experience suggests that it may be safe and effective for treatment of CVI.

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A Randomized Trial of Moderate (Class 2), High (Class 3), and Very High (Class 4) Elastic Compression in the Prevention of Recurrence of Venous Ulceration

Dragan Milic,[1,2,3] Sasa Zivic,[2] Dragan Bogdanovic[3]. [1]Medical School, University of Nis; [2]Clinic for Cardiovascular and Transplant Surgery, Clinical Centre Nis; [3]Department of Biomedical Sciences, State University of Novi Pazar

Background: Venous leg ulcers (VLUs) are an important health problem because of their high prevalence and associated high cost of care. Despite many available contemporary treatment modalities (surgery, endovenous thermal ablation, foam sclerotherapy, compression), recurrence rates remain high and range between 25% and 70% according to different studies. Numerous studies have suggested that regular use of compression stockings reduces VLU recurrences. However, there are limited data concerning two important questions: How long should compression hosiery be worn after ulcer healing, and which class of compression hosiery achieves better results in the prevention of VLU recurrences? The aim of this study was to establish the efficacy of three different strengths of compression (class 2, class 3 and class 4) in the prevention of VLU recurrences.

Methods: An open, prospective, randomized, single-center study with a 10-year follow-up was performed. There were 477 patients (240 men, 237 women; mean age, 59 years) with recently healed venous ulcers and no significant arterial disease, rheumatoid disease, or diabetes mellitus who were randomized into three groups: group A, 149 patients who were wearing a class 2 elastic stocking (Rudo, Nis, Serbia); group B, 167 patients who were wearing a heelless open-toed elastic class 3 compression device knitted in tubular form (Tubulcus; Laboratoires Innothera, Arcueil, France); and group C, 161 patients who were wearing a multilayer compression system composed of Tubulcus compression device and one elastic bandage 15 cm wide and 5 m long (Niva, Novi Sad, Serbia). The main outcome measures were recurrence of leg ulceration and compliance with treatment.

Results: There were 117 patients (24.52%) who did not comply with the randomized compression class: 24 (16.1%) in class 2, 34 (20.36%) in class 3, and 59 (36.65%) in class 4 ($P < .05$). Overall, 65% (234/360) of patients had recurrent leg ulceration by 10 years. Recurrence occurred in 120 (96%) of 125 class 2 compression cases, in 89 (66.9%) of 133 class 3 compression cases, and in 25 (24.5%) of 102 class 4 compression cases ($P < .05$; graph; Kaplan-Meier survival analysis showing ulcer recurrence at 10 years).

Conclusions: The results obtained in this study suggest that compression systems with the higher compression class provide a statistically significant lower recurrence rate compared with elastic compression of lower class.

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Stationary Blood Particle Aggregates and Vein Valve Shape: A New Classification of Vein Damage

Johann Chris Ragg. Interventional Phlebology, Angioclinic Vein Centers

Background: By use of novel high-resolution ultrasound systems, valvular structures and low-flow microaggregates may be depicted today in a more detailed way. The existence of particle aggregations within a valve sinus that are neither sludge nor thrombus, detected by high-resolution ultrasound (American Venous Forum Servier Travel Award 2017), was recently reported. This consecutive study of 180 single-vein valves showing motion-resistant aggregates compares valve structures, cusp motility, and extent of aggregates, resulting in a new approach to vein damage classification.

Methods: In 100 consecutive patients (68 female, 32 male; 42-64 years old) presenting with unilateral epifascial venous insufficiency, a total of 180 saphenous vein valves with motion-resistant aggregates were selected for closer high-resolution ultrasound analysis (14-16 MHz, peak