

# REVIEWS

## Venous symptoms in C0 and C1 patients: UIP consensus document

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**This UIP document provides an update on venous symptoms in C0 and C1 patients. The correlation between venous symptoms and the presence of telangiectases and/or reticular veins is one of the most controversial topics in chronic venous disorders. As symptoms may be non-specific of chronic venous disease, it is important to differentiate venous symptoms from symptoms of other causes. Some data from the Bonn Vein Study suggest that the risk to develop venous symptoms is increased in women, advanced age and obesity. Treatment is based on physical advice, elastic compression, venoactive drugs, sclerotherapy, correction of foot static disorders and reduction of body weight. Future research should be promoted on venous symptoms in epidemiological and follow-up studies, about the relationship between female hormone levels and symptomatic telangiectasias, and between venous pain and foot static disorders in C0s C1s patients.**

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The correlation between venous symptoms and the presence of telangiectases and/or reticular veins (C0S, C1S items of the CEAP classification) is one of the most controversial topics in chronic venous disorders. They have been referred by several studies <sup>1-3</sup> but until today no definitive conclusions can be made:

— individuals with reticular veins seem to have more symptoms compared with healthy people;<sup>1</sup>

— in the Edinburgh vein study, Ruckley found no evidence that telangiectases were entirely responsible for leg symptoms;<sup>2</sup>

— in the San Diego population study,<sup>3</sup> swelling and heaviness were related to telangiectatic disease. The prevalence of symptoms was greater in women than men. Aching was the most com-

mon symptom but was relatively nonspecific. Swelling was the most specific marker for prevalent visible and functional disease.

The current hypothesis on the mechanisms of venous pain emphasizes an inflammatory reaction and an interaction on venous nociceptors. Pain is frequently associated with other unpleasant sensations that do not belong to the range of symptoms of nociception: heaviness, feeling of swelling, cramps. That is the reason for which it is difficult to assess how symptoms are related to the chronic venous disorders, both because of the multiple factors involved and because of the lack of strong relationships between symptoms and clinical signs of the disease.<sup>4</sup>

However, a relationship has been found between symptoms and occurrence of edema. Venous symptoms are long-term predictor for edema.<sup>5</sup>

Furthermore, venous symptoms have a significant effect on the patient's quality-of-life.<sup>6-12</sup>

### Definition and description of venous symptoms

According to the CEAP classification:

— the clinical Class C0 is defined as no clinical signs visible or palpable;

— C1 as showing telangiectases or reticular veins only;<sup>13-33</sup>

— S is used for symptomatic, A for asymptomatic patients.

In the revision of the CEAP classification<sup>33</sup> it was stated that symptoms include aching, pain, tightness, skin irritation, heaviness, muscle cramps, and other complaints attributable to venous dysfunction. Nothing was said about the specificity of these symptoms. Venous symptoms (S) may also be relevant for higher C classes.

In the general population of the Bonn Vein Study venous symptoms were reported very frequently with 56.4%.<sup>17, 18</sup> Within the last 4 weeks before answering the questions 49,1 % of the male and 62,1 % of the female population reported venous symptoms (Table I). The prevalence increased with age.

A list of symptoms found in the literature without any clinical signs of venous disease or with telangiectasias and reticular veins only includes:<sup>13</sup>

- heavy legs: feeling of heaviness, tension in the both legs. Posterior aspect of the calf, popliteal fossa and thigh;
- pain: common word for phlebalgia, heavy legs from mild to severe intensity;
- feeling of swelling: no visible edema (C0s, C1s);
- heaviness and feeling of swelling more after sitting/standing and in warm environment, less during exercise and in cold surrounding;
- pruritus or itching (no visible cutaneous lesion no C4A);
- burning and itching sensations: mainly localized pain on clusters of telangiectasias;
- restless legs syndrome at night;
- night cramps: feeling of localized torn muscle. Pain persisting for several hours or days.

The two last symptoms seem relatively non-specific.

There are telangiectasias that can cause local symptoms (pain, burning) especially during pregnancy.<sup>13</sup>

C0 and C1 patients may also have pathological venous findings as a cause for the symptoms which are not clinically detectable. Among those are:

- rarely, post-thrombotic changes with valve insufficiency or venous obstructions in the deep venous system and venous malformations in the deep venous system;
- as well, primary reflux in perforators and deep veins;
- insufficiency of saphenous (subfascial) veins without visible varicose veins.

### Diagnosis

Ideally a Duplex ultrasound should be performed to eliminate rare causes.

As symptoms may be non-specific of CVD, it is important to differentiate venous symptoms from symptoms of other causes (Table II).

A scoring system has been proposed by P. Carpentier *et al.* with a combination of four criteria: sensation of heavy or swollen legs associated with itching, restless legs, or phlebalgia worsened by a hot environment or improved by a cold environment and not worsened by walking.<sup>14</sup>

TABLE II.—Scoring system.

Sensation of heavy or swollen legs	1
Associated with itching, impatient legs, or phlebalgia	1
Worsened by hot environment or improved by a cold environment	1
Not worsened by walking	1

TABLE I.—Venous symptoms in the last four weeks (more than one answer was possible).

	All		Men		Women	
	N.	%	N.	%	N.	%
Heaviness	559	18.2	150	11.1	409	23.8
Tightness	387	12.6	123	9.1	264	15.3
Feeling of swelling	349	11.4	77	5.7	272	15.8
Pain after standing	611	19.9	195	14.4	416	24.2
Pain during walking	355	11.6	152	11.3	203	11.8
Cramps	782	25.5	296	21.9	486	28.2
Itching	292	9.5	139	10.3	153	8.9
Restless legs	295	9.6	87	6.4	208	12.1

## Differential diagnosis

Aside from symptoms attributable to a venous origin those can also appear in other conditions like: obesity; standing or sitting profession; neurological reasons; vasculitis; eczema of non-venous origin; orthopedic diseases like Baker's cyst; chronic medical diseases like diabetes mellitus.

Pain may be due to different conditions as:<sup>15</sup> arterial intermittent claudication and venous claudication (rarely isolated); neurogenic intermittent claudication; rheumatologic or orthopedic pain; neuropathy.

The same is true for night cramps:<sup>15</sup> rest pain in arterial occlusive disease (stage III); neuropathy; restless legs syndrome in relation with a defect of neuromediator; deficiency in zinc and iron.

A subgroup of these symptomatic patients with no clinical sign of a venous disease (COs) have been identified to have functional abnormalities at phlethysmography (about 16%) and could be considered as hypotonic phlebopathy<sup>16</sup> in relation with a possible reduction of the venous wall tone.

Recent data has suggested that obese people may develop a position dependent functional venous hypertension even without pathological venous findings in Duplex investigation. In the sitting position the venous pressure in the legs may rise causing venous symptoms as well as venous signs including ulcerations in some cases.<sup>34-37</sup>

### Risk factors

Data from the Bonn Vein Study<sup>17, 18</sup> suggest that the risk to develop venous symptoms is increased in: women; advanced age; obesity.

## Treatment

### Physical advice

A proper lifestyle and practice of appropriate level of physical activities and antistasis exercises have been proposed like sports including swimming, exercises and massage, intermittent pneumatic compression.<sup>19, 20</sup>

The evidence of their efficacy is poor or inexistent.

Indirect proof in the literature has been reported: the results of Framingham study suggest that increased physical activity and weight control may help prevent varicose veins among adults at high risk.<sup>2</sup> Walking prevents dependent edema formation. This effect, however, cannot be explained by the lowered venous pressures.<sup>22</sup> Reinharez in 1977<sup>23</sup> classified the sport activities into two categories: those, which improve and those, which work against the peripheral venous circulation.

### Elastic compression

H. Partsch<sup>24</sup> has presented the indications for compression therapy in venous and lymphatic disease based on experimental data and scientific evidence.<sup>2</sup> RCTs<sup>25, 26</sup> have shown an efficiency of 10-15 mmHg CS on venous symptoms (Grade 1B). Furthermore, a meta-analysis suggests that subjects with symptoms of mild venous insufficiency benefit from wearing MCS providing moderate ankle pressure of 10-20 mmHg, lower pressure is ineffective and higher pressure is no more effective than moderate.<sup>27</sup>

### Venoactive drugs

Venoactive drugs<sup>28</sup> are a heterogenic group of drugs from vegetal or synthetic origin. Numerous RCT have demonstrated an effective attenuation of venous symptoms. An overview of the venoactive drugs with a proven capability to reduce venous symptoms was published by the Siena consensus group.<sup>28</sup> The Cyprus consensus (Nicolaïdes) on diagnosis and treatment of chronic venous diseases listed those venoactive drugs with an evidence for effectiveness in CVD (Grade A: calcium dobesilate, MPPF, HR-oxerutins, grade B: escins, ruscus extracts).

### Sclerotherapy

Treatment of the telangiectases and feeder reticular veins could result in the resolution of the venous symptoms.<sup>29</sup> Sclerotherapy of reticular veins would seem to offer a relief of symptoms better than thigh high 20-30 mmHg compression stockings.<sup>30</sup> There is no evidence suggesting superior efficacy or increased patient satisfaction

with any one sclerosant (sclerotherapy for lower limb telangiectasias 2011 The Cochrane Collaboration).

### *Correction of foot static disorders*

Foot static disorders can be considered as an important risk factor that affects CVD.<sup>31, 32</sup> Correction of foot static disorders will improve symptoms due to the SFD, as well as those related to venous stasis. These results could be explained by improvement of foot pump efficacy during walking.

### *Reduction of body weight*

After the reduction of body weight in an obese population led to a reduction of venous disorders.<sup>36</sup>

## **Conclusions**

Venous symptoms are a frequent finding in the general population. This includes C0s and C1s patients. However these symptoms may also be caused by other conditions and diseases. The use of a scoring system taking into account the existence or not of a foot static disorder may be useful. In the clinical stage C0 and C1 relevant venous pathology without visible clinical signs as in post-thrombotic deep venous valvular damage may be included. Aside of ambulatory venous hypertension in patients with venous pathology, functional venous hypertension as in the obese population even without venous pathology may be important. Many questions remain unsolved.

Female gender, higher age, sitting or standing profession and obesity are risk factors for venous symptoms in C0 and C1 patients.

Treatment options include compression treatment and venoactive drugs as well as the reduction of risk factors.

Future research should be promoted: in epidemiological studies on venous pain in C0s C1s; follow-up studies on venous symptoms in C0s, C1s; studies about the relationship between female hormone levels and symptomatic telangiectasias; and the relationship between venous pain and foot static disorders in C0s C1s patients.

## **References**

1. Kröger K, Ose C, Rudofsky G, Roesener J, Hirche H. Symptoms in individuals with small cutaneous veins. *Vasc Med* 2002;7:13-7.
2. Ruckley CV, Evans CJ, Allan PL, Lee AJ, Fowkes FGR. Telangiectasia in the Edinburgh Vein Study: Epidemiology and Association with Trunk Varices and Symptoms. *Eur J Vasc Endovasc Surg* 2008;36:719-24.
3. Langer RD, Ho E, Denenberg J, Fronck A, Allison M, Criqui M. Relationships between symptoms and venous disease. The San Diego Population Study. *Arch Intern Med* 2005;165:1420-4.
4. Danzinger N. Pathophysiology of pain in venous disease. *Phlebology* 2008;15:107-14.
5. Carpentier PH. Risk factors for different subsets of chronic venous disorders: results from the Basel follow-up study. Oral presentation in American Venous Forum 21st Annual meeting, Feb 11-14, 2009.
6. Andreozzi GM, Cordova RM, Scamparin A, Martini R, D'Erri A, Andreozzi F. Quality of life in chronic venous insufficiency. An Italian pilot study of the Triveneto Region. *Int Angiol* 2005;24:272-7.
7. Guex JJ, Myon E, Didier L, Nguyen Le C, Taieb C. Chronic venous disease: health status of a population and care impact on this health status through quality of life questionnaires. *Int Angiol* 2005;24:258-64.
8. Duque MI, Yosipovitch G, Chan YH, Smith R, Levy P. Itch, pain, and burning sensation are common symptoms in mild to moderate chronic venous insufficiency with an impact on quality of life. *J Am Acad Dermatol* 2005;53:504-8.
9. van Korlaar I, Vossen C, Rosendaal F, Cameron L, Bovill E, Kaptein A. Quality of life in venous disease. *Thromb Haemost* 2003;90:27-35.
10. Klyszcz T, Jünger M, Schanz S, Janz M, Rassner G, Kohonen R. Quality of life in chronic venous insufficiency (CVD). Results of a study with the newly developed Tübingen Questionnaire for measuring quality of life of patients with chronic venous insufficiency. *Hautarzt* 1998;49:372-81.
11. Launois R, Reboul-Marty J, Henry B. Construction and validation of a quality of life questionnaire in chronic lower limb venous insufficiency (CIVIQ). *Qual Life Res* 1996;5:539-54.
12. Guex JJ, Enrici E, Boussetta S, Avril L, Lis C, Taieb C. Correlations between ankle circumference, symptoms, and quality of life demonstrate the clinical relevance of minimal leg swelling reduction: results of a study in 1,036 Argentinean patients. *Dermatol Surg* 2008;34:1666-75.
13. Ramelet AA, Monti M. Clinical aspects of venous insufficiency of the lower limbs. In: Ramelet AA, Monti M, editors. *Phlebology. The guide*. Paris: Elsevier Ed. p. 107.
14. Carpentier PH, Poulain C, Fabry R, Chleir F, Guias B, Bettarel-Binon C. Ascribing leg symptoms to chronic venous disorders: The construction of a diagnostic score. *J Vasc Surg* 2007;46:991-6.
15. Ramelet AA, Monti M. Clinical aspects of venous insufficiency of the lower limbs. In: Ramelet AA, Monti M, editors. *Phlebology. The guide*. Paris: Elsevier Eds. p. 113-7.
16. Andreozzi GM. Prevalence of patients with chronic venous disease-related symptoms but without visible signs (described as C0s in the CEAP classification): the Italian experience. *Phlebology* 2006;13:28-35.
17. Rabe E, Pannier-Fischer F, Broman K, Schuldt K, Stang A, Poncar Ch *et al*. Bonner Venenstudie der Deutschen Gesellschaft für Phlebologie. *Phlebologie* 2003;32:1-14.
18. Rabe E. Bonn vein study. *Phlebologie* 2006;59:179-86.
19. Ramelet AA, Monti M. Lifestyle, sport physical therapy

- in venous insufficiency patients. In: Ramelet AA, Monti M, editors. *Phlebology. The guide*. Paris: Elsevier Ed. p. 281-9
20. Foldi M, Foldi E, Kubik S, editors. *Lehrbuch der lymphologie*. 6th ed. Munich: Urban and Fischer Verlag; 2005.
  21. Brand FN, Dannenberg AL, Abbott RD, Kannel WB. The epidemiology of varicose veins: the Framingham Study. *Am J Prev Med* 1988;4:96-101.
  22. Stick C, Jaeger H, Witzleb E. Measurements of volume changes and venous pressure in the human lower leg during walking and running. *J Appl Physiol* 1992;72:2063-8.
  23. Reinhartz D. Effects of various sport activities on peripheral venous diseases. *Phlebologie* 1977;30:241-8.
  24. Partsch H, Flour M, Coleridge Smith P, Benigni JP *et al*. Indications for compression therapy in venous and lymphatic disease. Consensus based on experimental data and scientific evidence. *Int Angiol* 2008;27:193-219.
  25. Vayssairat M, Ziani E, Houot B. [Placebo controlled efficacy of class 1 elastic stockings in chronic venous insufficiency of the lower limbs]. *J Mal Vasc* 2000;25:256-62.
  26. Benigni JP, Sadoun S, Allaert FA, Vin F. Efficacy of Class 1 elastic compression stockings in the early stages of chronic venous disease. A comparative study. *Int Angiol* 2003;22:383-92
  27. Amsler F, Blättler W. Compression therapy for occupational leg symptoms and chronic venous disorders -- A meta-analysis of randomised controlled trials. *Eur J Vasc Endovasc Surg* 2008;35:366-72.
  28. Ramelet *et al*. Veno-active drugs in the management of chronic venous disease. An international consensus statement: current medical position, prospective views and final resolution. *Clin Hemorheol Microcirc* 2005;33:309-19.
  29. Weiss RA, Weiss MA. Resolution of pain associated with varicose and telangiectatic leg veins after compression sclerotherapy. *J Dermatol Surg Oncol* 1990;16:333-6.
  30. Schul MW, Eaton T, Erdman B. Compression versus sclerotherapy for patients with isolated refluxing reticular veins and telangiectasia: a randomized trial comparing quality-of-life outcomes. *Phlebology* 2011;26:148-56.
  31. Uhl JF, Chahim M, Allaert FA. Static foot disorders: a major risk factor for chronic venous disease? *Phlebology* 2012;27:13-8.
  32. Saggini R, Bellomo RG, Iodice P, Lessiani G. Venous insufficiency and foot dysmorphism: effectiveness of visco-elastic rehabilitation systems on veno-muscle system of the foot and of the calf. *Int J Immunopathol Pharmacol* 2009;22(3 Suppl):1-8.
  33. Eklöf B, Rutherford RB, Bergan JJ, Carpentier PH, Gloviczki P, Kistner RL *et al*, for the American Venous Forum International Ad Hoc Committee for Revision of the CEAP Classification, Helsingborg, Sweden. Revision of the CEAP classification for chronic venous disorders: Consensus statement. *J Vasc Surg* 2004;40:1248-52.
  34. Garzon K. How does obesity influence the venous system of the lower extremities? *Gefässchirurgie (Berlin. Internet)* A.2009;14:496-9.
  35. Willenberg T, Schumacher A, Amann-Vesti B, Jacomella V, Thalhammer C, Diehm N *et al*. Impact of obesity on venous hemodynamics of the lower limbs. *J Vasc Surg* 2010;52:664-8.
  35. Benigni JP, Cady J. Effectiveness of weight loss on the evolution of chronic venous insufficiency (CVI) after bariatric surgery in obese patients. *Obesity Surgery A* 2008;18:442-4.
  36. Padberg Frank JR, Cerveira Joaquim J, LAL Brajesh K. Does severe venous insufficiency have a different etiology in the morbidly obese? Is it venous? *J Vasc Surg* 2003;37:79-85.
  37. Arfvidsson B, Eklof B, Balfour J. Iliofemoral venous pressure correlates with intraabdominal pressure in morbidly obese patients. *Vasc Endovascular Surg* 2005;39:505-9.

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