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Varicose symptoms without varicose veins: the hypotonic phlebopathy, epidemiology and pathophysiology

The Acireale project*

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Ever since 1982 the authors have been interested in varicose symptoms without varicose veins. Carrying out several pilot studies with infrared photoplethysmography (PPG) and strain gauge plethysmography they suggest that the pathophysiology of this behaviour could be caused by the reduction of the venous wall tone. They propose the name of Hypotonic Phlebopathy (HP). The diagnosis criteria are focused by symptoms (heavy legs in upright position, restless leg syndrome, sub-oedema and/or evening oedema) and signs detected by PPG, s.g plethysmography and duplex scanning (reduction of the muscle-venous calf pump and increase of the venous wall compliance). Epidemiology, assessed between 1989 and 1992 (Acireale Project), showed a 15.90%morbidity, with higher prevalence in females; the most important risk factors are pregnancy and family history. HP is not rare in males; the principal risk factor is work involving standing for long periods. These behaviours have been independently confirmed by two studies carried out in France in 1992, which showed a 15% prevalence in a similar group of subjects with functional venous insufficiency. The authors suggest the introduction of the term of Hypotonic Phlebopathy, the symptoms of which are significantly improved by phlebotonic drugs, especially when they are stronger. CEAP classification: C(0-S); E(P); A(0); P(unclassifiable); Clinical score (1-2); Anatomical score (0); Disability score (1).

Key words: **Veins diseases - Functional phlebopathy - Venous insufficiency - Hypotonic phlebopathy - Epidemiology, venous compliance, microcirculation.**

Varicose symptoms unaccompanied by varicose veins have always been one of the most controversial aspects of angiology. To identify these patients different definitions have been proposed: phlebopathic diathesis, pre-varicose syndrome, and functional phlebopathy. The last one, proposed by Bassi in the 1970s, is the most correct, because it stresses the presence of an incorrect func-

*) The study has been carried out since 1989 until 1992, when G. M. Andreozzi was Professor of Angiology at Medical School of the University of Catania. During the 1995, it has been presented at scientific session of Mediterranean Congress of Angiology (Corfu, GR), World Congress of International Union of Angiology (London, UK), and the World Congress of International Union of Phlebology (London, UK). In 1996 it has been discussed during the Consensus Conference on Chronic Venous Insufficiency (Abbay de Cernay Fr, 1996). Considering all the suggestions gave during these scientific events, the final version is now published when two of Authors work in Padua.

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tioning in the absence of anatomic alterations.[1]

We have been interested in this problem since 1982, assessing that people with varicose symptoms without varices accounted for 22% of all the people coming to our vascular laboratory because of venous symptoms.[2]

Characteristic symptoms and signs are heavy legs in the upright position, restless leg syndrome, and sub-oedema and/or evening oedema.

In 1986 we investigated 35 subjects with these symptoms, using the reflection light photoplethysmography (PPG) and we found a ΔR of 200±30 mV, significantly ($p<0.005$) lower than normal values for our laboratory.[3,4] This reduction of the effectiveness of the muscle-venous calf pump, according to the pathophysiological behaviours of the varicose syndrome, suggested that the varicose symptoms without varices could be caused by a reduction of the tone of the venous wall. In fact, by artificially increasing the venous tone with elastic bandages, we observed a normalisation of ΔR of PPG.[5]

Believing that these subjects have a particular kind of functional phlebopathy, (since they do not have any organic damage), we organised an epidemiological study to confirm our hypothesis and to assess the morbidity of this venous dysfunction.

The "Acireale Project"

We carefully observed the characteristics of several towns in Eastern Sicily, and we chose the area around Acireale, a small town with 50,000 inhabitants, because it contains a stratification of the population sufficiently representative of the whole Country. By a randomised-computerised method, we enrolled 1,500 subjects from the electoral list, matching the people for age, sex, social level, residency (sample groups of farmers, fishermen, services, and students).

The Acireale Project started in September 1989 and was completed in July 1992. It has been supported, as a shared cost, by the University of Catania (budget of Chair of Angiology), Zyma Italia Pharmaceutical Company (instrumental equipment), and the voluntary work of post-graduate students.

The people replying to the mailing invitation (1,031) received a detailed phlebological questionnaire, an angiological clinical examination to assess the evidence of subcutaneous veins, and several vascular examinations, such as Doppler cw, strain gauge plethysmography, PPG, Echo-Duplex scanning, and laser-Doppler.

Instrumental examination

The questionnaire enquired about the subjective symptoms, the family history, obesity, the number of pregnancies, and the use of oral contraceptives.

Doppler cw was performed in the standing position, focusing on the most important veins of the lower limb (femoral, saphenous crosse, great saphenous over and under the knee, popliteal, parva saphenous, tibial veins) assessing the venous patency and reflux.

Echo-Duplex scanning was used in people showing any evidence or suspicion of venous reflux, and in a small group of subjects (30) to assess the venous compliance. This parameter was assessed measuring the difference between the supine and upright position venous diameter.

The PPG (reflection light photoplethysmography) was performed in the standardised way, that is, in the sitting position, to assess the ΔR between the baseline and top values of the curve after 10 flexo-extension foot movements on the ankle; the refilling time was measured too.

Strain gauge plethysmography was performed to assess venous wall compliance during venous occlusion, measuring in the supine position the maximum incremental venous volume (MVIV). In the sitting position the drop of volume (ΔV) was measured after 10 flexo-extension movements.

Laser Doppler parameters (resting and standing flux and venous-arteriolar reflex VAR) were used in a small group of subjects [20] to assess the microcirculatory features.

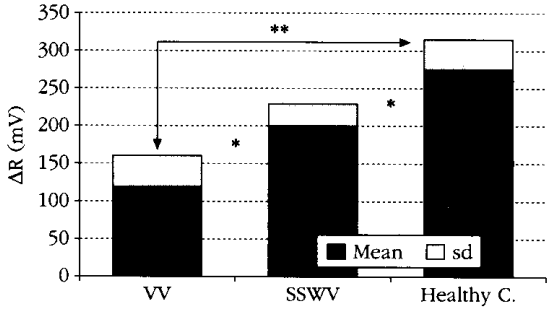

Fig. 1. — Behaviour of venous muscl-calf pump (PPG ΔR) in varicose veins, symptomatic subjects without varicose veins, and healthy controls (*p<0.005; **p<0.0005).

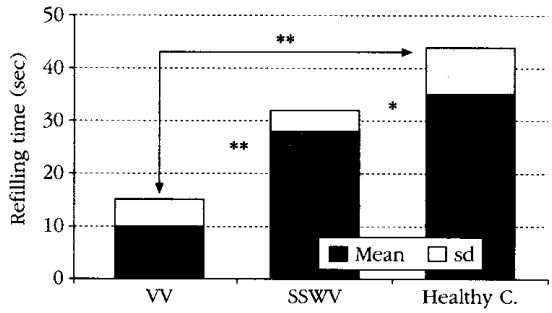

Fig. 2. — Significant reduction of refilling time in symptomatic subjects without varicose veins, versus healthy controls (*p<0.005; **p<0.0005).

Results

In our study we found: 330 healthy people; 140 patients with other vascular diseases (peripheral arterial disease, post-thrombotic venous syndrome, cutaneous vasculitis, etc.); 234 symptomatic patients with varicose veins (VV); 163 symptomatic patients with small reflux (valve incompetence) without varicose veins dilatation (reflux without varicose veins (RWV); and, 164 symptomatic subjects without varicose veins (SSWV).

PPG.—The average of ΔR was 275±40 mV in healthy people, and 200±15 mV in SSWV ($p<0.005$), showing a small yet significant reduction of the effectiveness of muscle-venous calf pump. In VV ΔR showed the lowest values, with very high ($p<0.0005$) statistical significance versus SSWV and healthy people (Fig. 1). The refilling time of PPG showed similar behaviour, with a small reduction in the SSWV and very important reduction in VV (Fig. 2).

S.g Plethysmography.—The average of MVIV was 4.5±0.4 ml% in SSWV and 2.9±0.3 ml% in healthy people ($p<0.005$). ΔV was 2.7±0.5 ml% in SSWV and 1.5±0.4 ml% in the controls.

Echo-Duplex-scanning.—We did not find reflux or obstruction in subjects with SSWV. Out of 20 SSWV 10 subjects without vascular disease, received an Echo-Duplex scanning examination, to assess venous wall compliance, measuring the difference between the vein diameter in supine and upright position. The diameter was measured at the popliteal vein, tibio-peroneal trunk and gastrocnemial veins. It was always higher in the upright position, without the phenomena of stupor venosus. The difference between diameter in the two positions was the following:

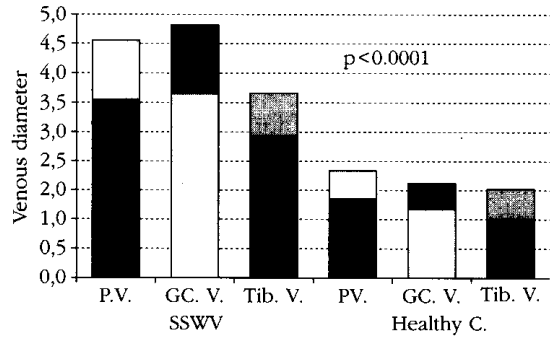

Fig. 3.—Mean and standard deviation of venous diameter changes in 20 symptomatic subjects without varicose veins and 10 healthy controls (PV=popliteal, GC=gastrocnemial, Tib.=tibial vein).

— *symptomatic subjects without varicose veins* (SSWV): popliteal v. 3.40±1.10 mm; tibio-peroneal trunk 2.70±0.80 mm, gastrocnemial v. 3.50±1.30;

— *healthy people*: popliteal v. 1.50±0.53 mm, tibio-peroneal trunk 1.10±0.57 mm, gastrocnemial v. 1.30±0.48 mm.

The statistical analysis showed that the difference was relevant ($p<0.0001$) [6] (fig. 3).

People with venous valve incompetence mostly showed a localised valve dysfunction, with flaps or prolapse.

Laser Doppler.—10 SSWV and 10 healthy people received a laser-Doppler examina-

tion, to complete the functional venous assessment. This study showed a significant ($p<0.0001$) increase of resting and standing flux in SSWV (RF 10.4±1.9 perfusion unit, SF 7.28±1.2) than in healthy people (RF 8.0±0.9, SF 3.6±0.6). The venous-arteriolar reflex was altered too (30% in SSWV, 55% in controls).[7]

Remarks on instrumental data

In our opinion, the increased MVIV, the decreased plethysmographic ΔV, and the decreased PPG ΔR, with absence of reflux or venous obstruction, demonstrate that the symptoms, in SSWV, are sustained by the increase in venous wall compliance. The reduction of PPG refilling time without valve dysfunction could be explained as a faster refilling sustained by a decrease of filling resistance caused by the reduction of the venous and venular tone, as, otherwise, show the changes of laser Doppler. The reduction of venous tone in these symptomatic subjects, on the other hand, is confirmed by the behaviour of venous diameter difference in supine and upright position.

These results confirm that the reduction of venous tone and the increase of venous wall compliance are the pathophysiological fulcrum of varicose symptoms without varicose veins. However, the concept of "phlebological diathesis", heterogeneous and indefinite melting pot, should be abandoned.

According to Bassi, it is now possible to define the functional phlebopathies or functional venous insufficiency, and in this context identify several frameworks as the constitutional phlebostasis, with endocrine peculiarities,[8,9] or the venous wall hypotonia. The role of the wall hypotonia on the genesis of the varicose symptoms without varicose veins seems to be demonstrated by PPG, occlusive plethysmography, Echo-Duplex and laser-Doppler data.

Our findings, which we have collected since 1982, have been independently confirmed by two French studies. One was carried out on military recruits,[10] the second on a vast survey in the Paris region.[11] The authors found a 15% prevalence of functional venous insufficiency in the 20-30 age group. They remark that the clinical disturbances are only functional (heavy legs, paresthesia, nocturnal cramps in the calves, restless legs) without clinical abnormalities of the veins. The disturbances often reflect a hyperdistensibility of venous wall, which can be detected by occlusive plethysmography, but it is fairly common to see varicosities and telangiectasias.[12]

We believe that this hypotonia could be sustained by the structural alterations of connective,[13,14] cellular [15,16] matrix, and smooth muscle cells dysfunction [17] of the venous wall, like these recently described in the varicose veins.

Epidemiology

During the three years we examined 1,031 (553 male and 478 female) subjects of the 1,500 invited people. The stratification by age group was roughly uniform. The higher reply to the mail invitation was found in the age groups 30-39, 40-49 and 50-59, because these groups pay greater attention to health problems.

Following the instrumental features, the recruited people were matched in eight categories.

Diagnosis criteria

1) Hypotonic phlebopathy:

— subjective symptoms always present;

— Doppler cw or echo-duplex scanning showing venous patency and absence of valve dysfunction or reflux;

— PPG with ΔR <250 mV;

— plethysmography s.g.: MVIV >3.0 ml%, with ΔV <1.5 ml%.

2) Latent hypotonic phlebopathy:

— subjective symptom referred intermittently (spring, summer, pregnancy, hard standing work, etc);

— Doppler cw or echo-duplex scanning showing venous patency and absence of valve dysfunction or reflux;

— PPG with ΔR <250 mV;

— plethysmography s.g.: MVIV >3.0 ml%,

with ΔV <1.5 ml%.

3) Enhanced hypotonic phlebopathy:

— subjective symptoms referred as continuously present during the examination period, but occasionally in the past, and related to an identifiable cause;

— Doppler cw or echo-duplex scanning showing venous patency and absence of valve dysfunction or reflux;

— PPG with ΔR < 250 mV;

— plethysmography s.g.: MVIV >3.0 ml%, with ΔV <1.5 ml%.

4) Senile hypotonic phlebopathy:

— subjective symptoms referred to by aged people as continuously present since the 6th decade, and never or occasionally in the past;

— Doppler cw or echo-duplex scanning showing venous patency and absence of valve dysfunction or reflux;

— PPG with ΔR <250 mV;

— Plethysmography s.g.: MVIV >3.0 ml%, with ΔV <1.5 ml%.

5) Varicose disease:

— evidence of subcutaneous dilated veins with reflux, with or without subjective symptoms.

6) Venous valve incompetence without varicose veins:

— People showing a small reflux in one or more parts of some veins, without dilatation.

To perform this last unusual diagnosis was needed because more people showed small anatomical and functioning alterations, so small that it was impossible to assign to the varicose vein a diagnosis, but nevertheless it was impossible to consider it normal from an anatomical point of view because of the reflux.

7) Other vascular disease:

— people with phlebopathy clearly related to previous deep venous thrombosis, or peripheral arterial disease, or cutaneous vasculitis, or dermatitis unrelated with venous disease.

8) Healthy people:

— people without symptoms or signs of vascular disease.

Results

Prevalence of diagnosis:

— 330/1,031 (32.00%) healthy subjects;

— 140/1,031 (13.57%) subjects affected by "other vascular diseases"

— 234/1,031 (22.69%) patients with varicose veins;

— 163/1,031 (15.80%) subjects with venous valve incompetence without varicose veins;

— 164/1,031 (15.90%) subjects with Hypotonic Phlebopathy (HP), of which:

— 44/164 (26.83%) had HP,

— 45/164 (27.43%) had latent HP,

— 49/164 (29.89%) had enhanced HP,

— 26/164 (15.85%) had senile HP.

The prevalence of HP was double in females than in males in all age groups.

Latent, enhanced and senile HP showed a uniform distribution for sex.

Males showed a higher prevalence in latent HP than females in the groups aged 30-39 and 40-49; in the 40-49 group, males had higher prevalence also in the enhanced HP

These findings are probably due to the greater attention paid to health problems in the 4th and 5th decades of age, with a greater response to mail invitation.

Prevalence of phlebostatic symptoms in hypotonic phlebopathy

About the most characteristic symptoms of the phlebostasis, we found:

— heavy legs: 122/164, 74.39% (26.21% males, 48.17% females);

— oedema: 58/164, 35.36% (10.36% males, 25.0% females);

— night resting cramps and restless leg syndrome: 48/164, 29.26% (9.14% males, 20.12% females).

Heavy legs are the most frequent symptom. Women especially report it (48.17%), in agreement with usual clinical observations. Men report it fewer times (26.21%). Evening oedema and restless phenomena have a lower prevalence than heavy legs.

Prevalence of the phlebopathic risk factors in hypotonic phlebopathy

Our questionnaire considered as the most important risk factors the phlebopathic family history, obesity, constipation, pregnancy and use of oral contraceptives.

Their prevalence in the different kinds of HP has been:

Phebopathic family history: 69/164, 42.07%:

— HP: 19/44, 43.18% (9.09% males, 34.99%);

— latent HP: 20/45, 44.44% (15.55% males, 28.88% females);

— enhanced HP: 27/49, 51.10% (22.44% males, 32.65% females);

— senile HP: 10/26, 38.46% (30.76 males, 7.69% females).

Obesity: 61/164, 37.19%:

— HP: 8/44, 18.18% (2.27% males, 15.90% females);

— latent HP: 13/45, 28.88% (20.00% males, 8.88 females);

— enhanced HP: 28/49, 57.14% (30.61 males, 26.53 females);

— senile HP: 12/26, 46.15% (19.23% males, 26.92% females).

Constipation: 48/164, 29.26%:

— HP: 12/44, 27.27% (4.54% males, 22.72% females);

— latent HP: 10/45, 22.22% (6.66% males, 15.55% females);

— enhanced HP: 15/49, 30.61% (16.32% males, 8.16% females);

— senile HP: 11/26, 46.30% (23.07% males, 19.23% females).

Out of the 89 women identified as HP (all categories) we found that 45 had had one or more pregnancies, and 11 used oral contraceptives, either during the examination or in the past. The prevalence was:

Pregnancy: 45/89, 50.56%:

— HP: 15/30, 50.00%;

— latent HP: 6/21, 28.57%;

— enhanced HP: 20/24, 80.53%;

— senileHP: 4/14, 28.57%.

Use of oral contraceptives: 11/89, 12.35%:

— HP: 4/30, 13.33%;

— latent HP: 2/21, 9.52%;

— enhanced HP: 5/24, 20.83%.

Remarks on the epidemiological data

Varicose diseases

The diagnosis of varicose disease was not the primary target of this study. Nevertheless we report that in our study a 22.60% prevalence of varicose veins was found, below the normal expectation. It was 8% lower than the findings of Strano and Novo in western Sicily (30.7%).[18] This difference could be sustained by different criteria utilised (questionnaire, clinical examination, and instrumental data) as the great variability of different epidemiological studies suggests.

However, our study shows a unusual behaviour; the diagnosis of varicose veins was performed in 119 males (11.54%) and 115 females (11.15%), with female/male ratio 1:1. These data disagree with other studies' data (female/male ratio 3:1).

If we consider the questionnaire replies instead of the objective diagnosis of varicose veins, we find that male subjects have poor phlebostatic symptoms also when they have objective varicose veins, while these symptoms have been reported frequently and with high intensity by the female patients, also when they do not have varicose veins but only a functional dysfunction (female/male ratio 3:1).

We could conclude that, even though they have the diseases, males do not consider phlebostatic symptoms to be important, whereas women do.

That could explain the higher prevalence of varicose disease in women in the epidemiological investigation carried out by questionnaires instead of by careful clinical and instrumental examination. More investigation is needed!

Patients with venous valve incompetence without varicose veins

In 163 patients of the study population (15.80%), we found valve incompetence and reflux in different levels of the superficial venous system, without varicose veins. This

anatomic and functional condition is more important in males, being related to stress caused by working in an upright position. Pathophysiologically it is never a healthy state: the evolution of varicose veins is always possible, and its clinical evidence could be modest or absent for a long time.

Hypotonic phlebopathy (HP)

Clinical and instrumental characteristics of HP were found in 164 (15.90%) subjects; 75/164 (45.73%) were males and 89/164 (54.27%) were females.

The prevalence of the different kinds of HP were the following:

— hypotonic phlebopathy: 44/164 (26.83%);

— latent hypotonic phlebopathy: 45/164 (27.43%);

— enhanced hypotonic phlebopathy: 49/164 (29.89%);

— senile hypotonic phlebopathy: 26/164 (15.85%).

Heavy legs are the most important symptom. The phlebopathic family history is the risk factor with the highest prevalence (42.07%). It seems to be important in determining the appearance of all types of HP and it occurs especially in the female sex (34.09% HP, 18.84 latent HP, 23.18 enhancing HP), except in senile HP (2.89%).

Obesity is a second risk factor of Hypotonic Phlebopathy (37.19%); nevertheless its importance is modest in constitutional HP, and only for women (15.90%). In latent HP its role remains low, though more important for males' (20.00%). In senile HP it is important for both sexes, appearing in 46.15% of the senile population. But its highest importance is as an enhancing factor in enhanced HP (57.14%), especially for men (30.61%).

Constipation has a general prevalence of 29.26%. It is an important risk factor especially for women (27.27% in HP, 15.55% in latent HP). It is more important in senile HP (46.30%) for both sexes (23.07% males, 19.23% females). Like obesity it plays a very important role as an enhancing factor for males (16.32%).

Pregnancy is a very high risk factor for HP. In our study we found 89 women with HP and 45 of them (50.56%) had had one or more pregnancies.

It has a very important role as an enhancing factor; 80.53% of the women with enhanced HP had had one or more pregnancies. However we think that in senile HP the enhancing role of previous pregnancy is less important than obesity and constipation.

Conversely, the use of oral contraceptives is not a risk factor for HP; its general prevalence is below 20%, only as an enhancing factor the prevalence reaches 20%, but the significance is very low.

Conclusive remarks

As underlined in the paragraph on instrumental examinations, we believe that today we can easily classify the subjects with functional phlebopathies using modern investigation techniques. Within the clinical picture described by Bassi, we could distinguish several frameworks, such as the constitutional phlebostasis (Allegra), our hypotonic phlebopathy, and probably many more.

The identification of these clinical pictures is important not only from the nosographic and academic point of view, but also in clinical practice. In fact, the symptoms of HP are improved by regular use of phlebotonic drugs, overall when they are stronger (spring and summer times).

The hypothesis that the functional phlebopathies, and particularly the hypotonic phlebopathy, could be a prodromic phase of varicose disease (prevaricose syndrome) is rather improbable. Our uncontrolled follow-up carried out for over ten years has, in fact, shown varicose evolution only in the group of "venous valve incompetence without varicose veins" - in which the structural damage of the varicose veins, the valve dysfunction, is still present.

From the epidemiological point of view, we confirm the importance of family history and pregnancy as the main risk factors of dilative phlebopathies. Conversely, the often-suggested role of oral contraceptives as a risk factor for venous wall dysfunction (varicose veins and HP) has not been confirmed.

Therefore, concerning these kinds of phlebopathies, the use of oral contraceptives is not harmful; on the contrary, since they reduce the number of pregnancies, which are directly related to varicose veins, they could be paradoxically considered preventive. Nevertheless, we need to remember that using contraceptives interferes with the coagulative system and the possibility to enhance a venous thrombosis.

However, the most important remark regards the perfect concurrence of the prevalence found in two different and far European regions, 15% in the studies of Cloarec groups, and 15.90% in our experience. This concurrence means that the feature of this clinical picture is true.

Therefore we propose strongly to introduce officially in the nosography of venous diseases the term of Hypotonic Phlebopathy to indicate the patients with varicose symptoms without structural damage of the venous system.

CEAP

According with CEAP criteria, the HP could be classified as:

C.—0-S: because the patient is symptomatic but without clinical sign.

E.—P: because generally the HP is primary in all cases.

Only one doubt: could it be classified as congenital? We don't know!

A.—0: because the HP is without organic damage.

P.—Unclassifiable: because neither superficial, deep, nor perforator veins are involved, just the wall.

Clinical score.—Generally is 1 or 2 (pain, evening oedema, and restless legs).

Anatomical score.—Is 0.

Disability score.—Is 1, symptomatic but with regular life style.

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They would also like to thank all the authors who have agreed with this suggestion or who have objectively criticised it - giving new impulses to carry on the studies.
Finally, they would like to thank the Scientific Committee of the World Congress of the International Union of Angiology (London UK, April 1995) and World Congress of the International Union of Phlebopathy (London UK, September 1995) who accepted the topic of hypotonic phlebopathy and discussed it in their scientific session.
A particular acknowledgement to Mr D. Parsons, teacher of English at The Regency International School of English (Ramsgate, South Kent, UK) for the text revision.

Riassunto

La sintomatologia varicosa senza varici. La flebopatia ipotonica, epidemiologia e fisiopatologia. Il "Progetto Acireale"

Sin dal 1982 gli Autori hanno studiato il problema della sintomatologia varicosa senza varici. Sulla base di iniziali studi pilota condotti mediante fotopletismografia infrarossa e pletismografia strain gauge, essi hanno formulato l'ipotesi che il fulcro fisiopatologico di questo quadro possa essere la riduzione del tono venoso, proponendo il nome di Flebopatia Ipotonica (FI). I criteri diagnostici sono clinici e strumentali. I sintomi più frequenti sono il senso di peso ortostatico, le gambe senza riposo, il sub-edema o l'edema serotino. I segni strumentali più importanti sono la riduzione dell'efficienza della pompa muscolo venosa e l'aumento della distensibilità della parete venosa valutate con metodo pletismografico, fotopletismografico ed ecoduplex.

Uno studio epidemiologico condotto dal 1989 al 1992 (Progetto Acireale) ha dimostrato una morbilità del 15.90%, con prevalenza maggiore nel sesso femminile; i più importanti fattori di rischio sono risultati la familiarità e la gravidanza. Nel sesso maschile, in cui la FI è tutt'altro che rara, il principale fattore di rischio è l'intenso lavoro ortostatico.

Queste osservazioni sono state confermate in modo indipendente da due studi condotti in Francia nel 1992, che hanno mostrato una prevalenza del 15% in un analogo gruppo di soggetti con insufficienza venosa funzionale.

Gli autori propongono di introdurre ufficialmente l'uso del termine di Flebopatia Ipotonica, i cui sintomi sono positivamente influenzati da un trattamento flebotonico, soprattutto nel periodo di maggiore intensità.

Classificazione CEAP: C(0-S); E(P); A(0); P(non classificabile); Punteggio Clinico (1-2); Punteggio Anatomico (0); Punteggio di Invalidità (1).

Parole chiave: Flebopatie funzionali - Insufficienza venosa funzionale - Flebopatia ipotonica epidemiologia - Distensibilità venosa - Microcircolazione.

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Comment

This is an interesting concept, which defines people with any kind of subjective "varicose symptoms" but without objective signs of venous disease as patients suffering from hypotonic phlebopathy.

Other epidemiological studies which have been performed in Europe (Basle-study, Edinburgh-study) found subjective leg-symptoms also not only in patients with varicose veins but to a considerable amount as well in people without any varicosities. The authors of these studies explained their finding by the fact that symptoms of varicose veins are not specific for venous disorders. In an article by Bradbury et al. which caused a lot of discussion it had even been stated that therefore surgery would be unlikely to ameliorate symptoms in the majority of patients, (-a statement which was not proven). This work from Scotland is also based on a questionnaire regarding leg symptoms and on an objective examination and gives the proportions of symptoms both in the population with and without varicose veins.*

Interestingly Andreozzi and coworkers demonstrated that people with subjective symptoms but without varicosities show similar results of different examinations like patients with varicose veins. Until now, a correlation of subjective symptoms and parameters from the vascular lab was supposed to be rather weak even in patients with severe venous pathology.

The frequency of subjective symptoms is only given for the "HP-popualtion" but not for the other groups so that "sensitivity" and "specificity" of these symptoms in the various parts of the population can not be assessed. The same is true for the risk factors.

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*) Bradbury AW, Evans CJ, Allan PL, Lee AJ, Ruckley CV, Fowkes FG.Vascular surgical society of great britain and ireland: symptoms of varicose veins. Br J Surg 1999;86(5):700