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SOCIÉTÉ FRANÇAISE DE PHLEBOLOGIE

# Assessing compliance with non-operative treatments of chronic venous disorders: "the Vein Act Program".

## *Adhérence aux traitements conservateurs des affections veineuses chroniques : « Vein Act Program ».*

Branisteanu D.-E.


### Summary

**Introduction:** Chronic venous disorders (CVD) are a worldwide problem, with a high prevalence and a very strong socioeconomic impact. Yet, compliance to non-operative treatments of CVD is poorly studied.

**Objective:** The Vein Act Program (VAP) aimed to assess compliance with and effects of non-surgical CVD treatments (lifestyle advice, venoactive drugs (VAD), and compression therapy (CT)) in symptomatic patients in the framework of ordinary consultations.

**Methods:** VAP is an international, observational, prospective, multicenter study, which was endorsed by the European Venous Forum (EVF). Adult patients, complaining of venous pain and/or signs and seeking treatment for CVD underwent a leg examination. Following confirmation of a CVD diagnosis, a case report form was completed listing the patient's clinical presentation and history, reported symptoms, and prescribed non-surgical treatment(s). In a follow-up consultation, compliance with and effect of treatment were assessed, together with patient satisfaction. Reasons for noncompliance, if any, were sought.

**Results:** A total of 2444 CVD outpatients (1816 female, 608 male) from 248 Romanian centers were followed-up. At inclusion, 64% of patients seeking leg care were in C3 to C6 CEAP stages and very few presented with symptoms only (Cos; 3%) or mild signs (C1; 16%). Most all patients were receiving a treatment (99.6%), of which 42% a combination of lifestyle advice + VAD + CT; and another 42% VAD + advices. At the follow-up visit, 99% of patients reported that they had correctly complied with the VAD prescription. Compliance with lifestyle advice was reported by 92% of patients. Only 58% of patients with a prescription for CT attended the appointment wearing the compression hosiery correctly, and 30% reported that they had worn the hosiery as prescribed. The majority did not follow the prescription and wore the hosiery either most days (24%), intermittently (27%), or not at all (19%). The reasons for noncompliance are detailed in this article.

### Résumé

***Introduction :*** *Les affections veineuses chroniques (AfVC) constituent un problème mondial car leur prévalence et leur coût sociétal sont élevés. Malgré cela, l'adhésion des patients aux traitements non-chirurgicaux est peu étudiée.*

***Objectif :*** *Le but du « Program Vein Act » (PVA) était d'évaluer l'adhésion des patients aux traitements non-chirurgicaux des AfVC, à savoir les règles hygiéno-diététiques, les traitements veinoactifs et la compression. Le PVA visait aussi à mesurer l'impact de ces traitements sur les symptômes et signes liés aux AfVC.*

***Méthodes :*** *Le PVA est une étude prospective, observationnelle et internationale validée par l'EVF (European Venous Forum). Tout patient adulte consultant spontanément pour une AfVC était inclus. Après confirmation du diagnostic par examen clinique et investigation, les informations suivantes étaient rapportées : symptômes et signes liés à une AfVC, antécédents du patient et type de traitement non-chirurgical prescrit incluant toutes ses caractéristiques. La visite de suivi visait à évaluer le respect de la prescription par le patient et éventuellement, à connaître les raisons de non-respect. Les effets du traitement étaient également mesurés.*

***Résultats :*** *2 444 patients souffrant d'AfVC (1 816 femmes, 608 hommes) dans 248 centres d'investigation en Roumanie ont été suivis. Parmi eux, 64 % étaient déjà à un stade avancé de la maladie (CEAP - C3 à C6), alors que 3 % seulement étaient en Cos et 16 % en C1. Presque tous les patients inclus ont reçu un traitement (99,6 %), essentiellement une combinaison de règles hygiéno-diététiques, traitements veinoactifs (VA) et compression (43 %), ou de règles hygiéno-diététiques et VA, sans compression (42 %). Lors de la visite de suivi, 99 % des patients affirmaient avoir suivi correctement la prescription des VA et 92 % celle des règles hygiéno-diététiques. Pour la compression, 30 % seulement des patients disaient avoir suivi la prescription, les autres l'ayant porté en discontinu (24 % presque tous les jours, 27 %*


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**Conclusion:** The VAP detected several factors that influence patient compliance with CVD treatment, information that could be useful for improving education of both physicians and CVD patients in order to better manage a chronic disease that can be prevented and controlled therapeutically.

***Keywords:*** *Chronic venous disorders, venoactive drugs, compression therapy, compliance to treatment.*

*de façon intermittente, 19 % pas du tout), et 58 % d'entre eux portaient le dispositif de compression sur eux lors de la consultation. L'article ci-joint détaille les raisons de non-respect des prescriptions.*

***Conclusion :*** *Le PVA nous apporte des informations utiles sur les raisons de non-adhérence aux traitements qui peuvent aider à une meilleure prise en charge des AfVC.*

**Mots-clés :** affections veineuses chroniques, veinoactifs, compression, adhérence aux traitements.

## Introduction

The international chronic VEnous dIsorders maNagement and EvaluAtion of Chronic venous disease treatment effecTiveness (VEIN Act Program), carried out under the auspices of the European Venous Forum, was designed to assess compliance with non-operative treatments (lifestyle advice, venoactive drugs, and compression therapy) for chronic venous disorders (CVD) in the framework of ordinary specialized consultations.

The present report is focused on the Romanian data of the Vein Act Program (VAP) and its primary objective was to help physicians, patients, and the scientific community to assess compliance with non-operative treatments of CVD.

The secondary objective was to assess the effects of non-operative treatments on symptomatic CVD patients, in terms of symptom improvement, amelioration of daily activity, and patient satisfaction

## Materials and methods

The Romanian VAP was a prospective, multicenter and observational survey.

Patients were selected from among those who complained of pain in the lower limbs and who consulted a doctor because of any clinical presentation related to CVD.

The suitability of the patients for involvement in the program was assessed using set criteria: woman or man over 18 years old, not having ongoing treatment for CVD, informed of their involvement in the program and agreeing to take part, informed that they have the right to refuse to participate fully or partly, not consulting for an emergency or for the acute episode of an ongoing event, and free of concomitant diseases that might interfere with venous treatment.

If these criteria were met, the patient was asked about venous signs and symptoms and then underwent a leg examination If the patient presented with at least one venous symptom or venous sign or both, a case report form was completed with the following information: patient's clinical presentation and history, presence of CVD signs and/or symptoms, and non-operative treatment prescribed, listing all treatment characteristics.

Patients were advised to come for a follow-up visit as usually done in routine.

In the follow-up consultation scheduled, if possible, at the end of prescription duration, compliance with and effect of treatment were assessed, together with patient satisfaction. Reasons for noncompliance, if any, were sought.

***Characterization of CVD symptoms and signs:*** four symptoms (heavy legs, pain in the legs, a sensation of swelling, and cramps) and three main circumstances of onset (after prolonged standing, at the end of the day, during the night) were identified worldwide thanks to the Vein Consult Program [1].

At least two of these three aggravating factors had to be present to confirm that symptoms were indeed related to CVD.

**Signs** as described in the clinical section of the clinical, etiological, anatomical, pathophysiological (CEAP) classification were reported (C0: No visible signs / C1: Telangiectases, reticular veins / C2: varicose veins / C3: Edema / C4a: Skin changes, angiodermatitis / C4b: Skin changes, atrophie blanche /C5: Healed ulcer /C 6: Active ulcer) [2].

***Assessment of chronic venous disorder symptoms:*** patients were asked to indicate the intensity of the symptom they were complaining of by using a visual analogue scale (VAS), and to appraise the symptom frequency by circling on a 5-point verbal scale (0 = never, 1 = rarely; 2 = occasionally; 3 = regularly; 4 = all day and night).

The study was conducted in accordance with the principles of the 7th revision of the Declaration of Helsinki (Seoul 2008). Patients were informed and verbal and written consents for participation in the study were obtained.

## Results

### Enrollment in the VAP

The Romanian VAP was performed between December 2013 and September 2014.

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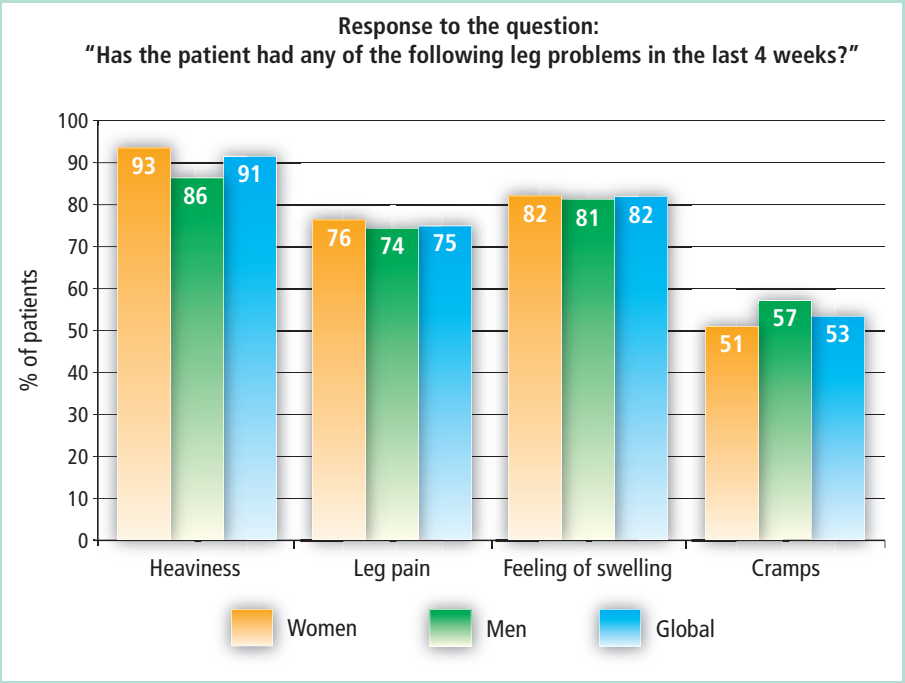


*FIGURE 1 : Symptoms reported by the patients of the Vein Act Program in Romania at the visit of inclusion.*

The mean time between inclusion visits Vo and follow-up visits V1 was 88 days, *i.e.* around 3 months, and no statistical difference was observed between men and women regarding the time interval between visits ($P = 0.97$).

**The investigators were selected from the Romanian health care system and 248 physicians with different medical specialties were included (general practitioners, dermatologists, internists, vascular surgeons, rheumatologists, rehabilitation physicians and gastroenterologists).**

**A total of 2496 patients were enrolled at Vo, and 2444 patients returned at V1.**

## Patients' profile at Vo

Participants in the Romanian study were predominantly female (74.9%), mean age 56.1 ± 14.1 years, and overweighed (BMI 27.67 ± 5.13 kg/m$^2$).

Most patients were in the 50-59 years age group (29% of women and 29% of men).

### *Symptoms of CVD*

Symptoms were present in 96.1% of patients and at least 91.2% reported they were having symptoms over the last 4 weeks. In order of frequency, they were: heaviness (91.2%), sensation of swelling (81.6%), leg pain (75.2%) and cramps (52.7%).

Patients complained of an average of 3 ± 1 symptoms.

The average intensity of symptoms was rated at 5.4 cm on the VAS. Women reported symptoms more frequently than men in general (97% in women *versus* 95% in men, $P = 0.028$), and in particular heaviness but at a lower intensity (5.3 cm in women *versus* 5.4 cm in men) **(Figure 1)**.

The time of increased symptoms intensity was mainly at the end of day (83%) and after prolonged standing (82%). Daily frequency of symptoms was 'regularly' for 70% of patients and 'occasionally, rarely or never' in 30% of cases.

The prevalence of local pain and cramps over the last 4 weeks increased with age in the female patients, but did not vary in men.

The intensity of symptoms increased with both increased BMI and increasing CEAP class in both sexes.

The frequency of symptom occurrence also increased with age.

### *Self-reported signs of CVD*

Telangiectasias were reported in 80% of cases, edema in 62%, and varicose veins in 61%.

No gender differences was seen for edema ($p = 0.0084$) and telangiectasias ($p = 0.0028$) but varicose veins were more frequently the reason for consultation in men compared with women (72% in men *vs.* 57% in women; $P < .0001$), and so for skin changes (35% in men *vs.* 17% in women, $P < .0001$) and venous leg ulcers (12% in men *vs.* 2% in women, $P < .0001$) **(Figure 2)**.

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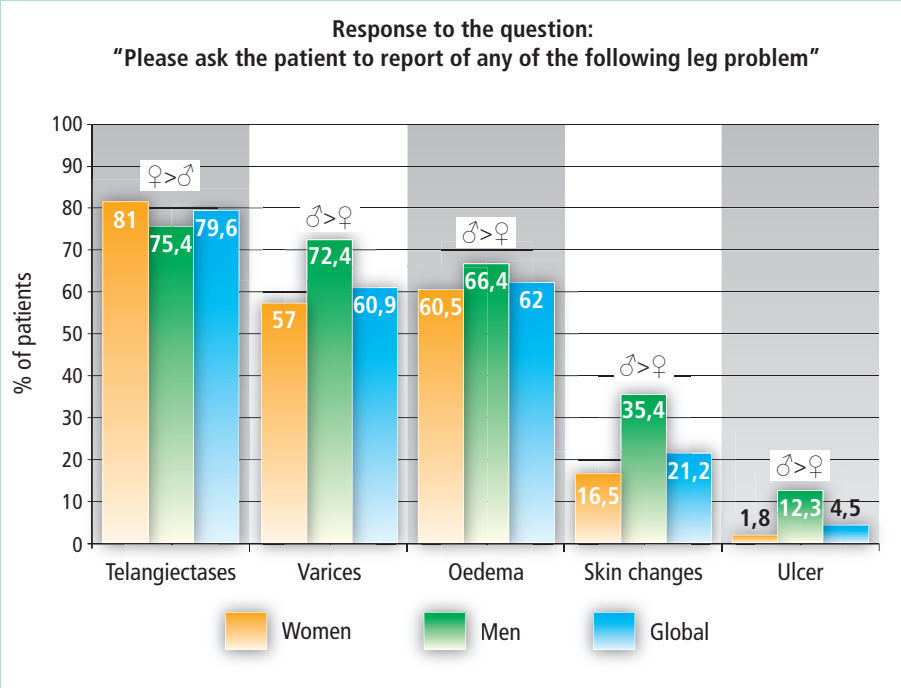


*FIGURE 2 : Patients' self-reported signs in the Vein Act Program in Romania, at the visit of inclusion.*

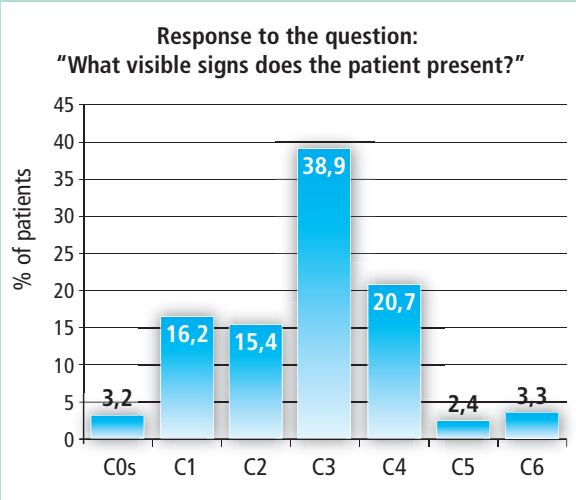


*FIGURE 3 : Patients' CEAP profile of the Romanian survey as reported by doctors at inclusion.*

### *Physician-reported signs (CEAP classification)*

Most of the patients seeking care had chronic venous insufficiency and were assigned high CEAP classes: C3, 38.6%; C4 (skin changes), 21%, and C5-C6 (venous leg ulcer, 4%), while patients in mild stages consulted less: Cos, 3%; C1, 16.2%; and C2, 15.3% **(Figure 3)**.

Consulting patients in C1 and C2 were more often among those younger than 34 years while the C3 to C6 ones increased with age and BMI.

### Treatment for CVD

As a whole, 551 patients (22.7%) reported they had previously consulted for venous leg problems (68.4% women and 31.6% men), but only 328 patients (13.5%) had received a treatment (69.5% women and 30.5% men).

These figures significantly increased with older age, increasing BMI, symptom intensity, and CEAP class, whatever the patients' gender ($P < .0001$).

Nearly all patients (99.6%) who consulted for leg problems at Vo were prescribed a treatment, whichever CEAP clinical class they were assigned, including Cos ($P$ = NS). Less than half of them (42.4%) received a treatment combining lifestyle advices, VAD and compression therapy (CT), and another half 41,9% a combination of VAD and advices.

A few received a single treatment (< 1%). Type and combinations of treatment did not vary according to patients' profile ($P$ = NS).

Of the 51.4% of the patients who received a CT prescription, the most commonly prescribed strengths were 'mild' (15-22 mmHg; 34.0%) and 'moderate' (23-32 mmHg; 38.6%). Stockings (85.3%), particularly at thigh level (52%), were preferred to bandages. Most of the patients received CT for more than 12 weeks.

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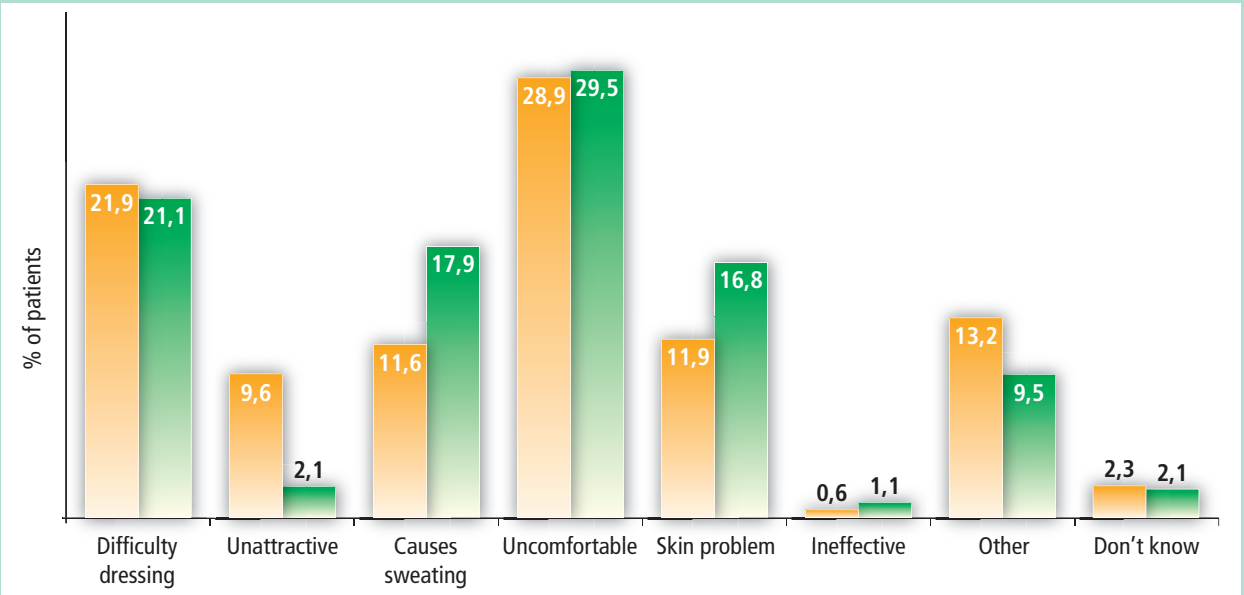


*FIGURE 4 : Reasons for non-compliance to compression therapy according to gender.*

### Assessment of compliance to treatments at V1

The analysis of patient compliance with treatment revealed that 99% of the enrolled patients respected the VAD prescription in terms of purchased trade name, posology and treatment duration, and that 92% followed the advices on lifestyle changes.

The reasons evoked by patients for not taking the recommended VAD were "I forgot" or "I took another drug".

In general, older patients were more likely to switch to another drug ($P < .0001$).

As regards as lifestyle advices, the reasons were 'lack of time' (49%), 'too difficult to follow' (47%) and 'inefficient' (4%).

No variations were found in relation with gender, age, BMI, CEAP class and symptom intensity.

Regarding CT, purchase of the prescribed strength was respected in 77% of patients.

The remaining 23% who did not buy the prescribed strength gave the following reasons: unavailability on the purchase point (14%), and switch by pharmacists in 5%.

But for most, no reason was reported (83%).

The majority did not follow the prescription and wore the hosiery either most days (24%), intermittently (27%), or not at all (19%).

Only 58% of patients with a CT prescription attended the appointment wearing the compression hosiery correctly, and 30% reported that they had worn the hosiery as prescribed.

The majority (70%) wore hosiery either most days (24%), or intermittently (27%), or even did not wear it at all (19%).

The reasons reported by patients for not wearing CT were: 'Not comfortable' (48%), 'Too difficult to put' (35%), 'Too warm' (22%), 'Itches' (21%), 'Not esthetic' (13%), and not 'efficient' (2%) **(Figure 4)**.

Compliance with CT differed depending on sex, age, BMI and intensity of symptoms.

As to compression level, most women preferred mild compression (37% of women *vs*. 20% of men), while more men preferred moderate and strong compression (80% of men *vs*. 63% of women).

Women felt that the stockings were unattractive, while men said they were too hot to wear. Young patients bought preferentially mild strength of stockings ($P < .0001$).

The reasons for noncompliance in young people were related to the unattractiveness or the warm of stockings, while in the older patients and those in severe CEAP classes complained of the difficulty to put hosieries.

Patients with mild symptoms bought light compression stockings, and those with severe symptoms purchased moderate and severe compression stocking ($P < .0001$), which they found difficult to put on ($P = 0.03$).

## Discussion

CVD is often under diagnosed by doctors and neglected by patients, which is why the costs of care for patients with CVD (particularly in severe stages) are very high, acoounting for 2% to 3% or more of community heathcare buget [3, 4].

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Data in the literature confirm that CVD is a chronic, progressive and debilitating disease, and that increased patient compliance with the prescribed treatment together with early diagnosis are key elements in controlling the disease and improving the quality of life for patients [5, 6].

Although CVD affects millions of people worldwide, VAP confirms that it is still an underdiagnosed disease and neglected by some patients despite its negative impact on the quality of life (QoL) [7, 8, 9, 10].

The analysis of VAP data showed that a very small percentage of patients diagnosed with CVD prior to enrollment were following the prescribed treatment [11].

Thus, a number of 551 patients (22.7%) reported at least one visit to a doctor for their CVD-related problems prior to entering the study, but only 328 patients (13.5%) had received a treatment.

A similar conclusion was reached by the RELIEF (Reflux assessment and quality of life improvement with micronized Flavonoids) Study, which proved that a very low percentage (21.8%) of the "intention-to-treat" (ITT) population had previously been treated, despite obvious symptoms of chronic venous disorders [12].

These findings confirm the fact that some patients neglect CVD and have a low compliance with treatment [13].

Therefore, more efforts are required to increase public awareness about the chronic, progressive and potentially disabling nature of CVD and that only a correct diagnosis and treatment initiated as early as possible can control the disease and its progression to severe stages [2, 14, 15].

VAP demonstrated that the percentage of CVD patients diagnosed in CEAP class Cos is small (3.3%), most patients being diagnosed in stage C3 (38.6%) [16].

The Vein Consult Program showed that patients diagnosed in the early CVD stages are very few and that the disease is most often diagnosed in advanced stages [17].

These data emphasize the need for a sustained effort for the active detection of CVD and, why not, additional training for both GPs and specialist physicians, so that therapeutic decisions to be applied in early disease stages.

One of CVD risk factors for CVD is obesity.

The Vein Act Program (Romania) identified a significant positive correlation between BMI value and incidence of CVD, especially of severe stages of the disease.

Multiple studies have shown that patients with high BMI tend to have a higher risk for CVD and leg ulcers [1, 22].

VAP also demonstrated a strong correlation between BMI and duration of venoactive treatment needed for patients to experience CVD symptom relief [23].

Little is known about how obesity affects the management of CVD. A recent published study in obese patients with CVD concluded that therapy of CVD is affected by BMI and Class II, and morbid obese CVD patients are less frequently compliant with compression therapy but are willing to accept surgical procedures and the use of topical agents [23, 24].

Another question raised is whether the usual doses of venoactive drugs are sufficient for patients with CVD and very high BMI. It is important to emphasize that in obese patients with CVD besides long-term venoactive treatment, lifestyle change and weight loss are imperatively recommended [22].

Starting from this finding, an effort to promote among physicians the evidence demonstrating, as VAP data also did, that a short-term treatment with VAD may be responsible for their low therapeutic efficacy and occurrence of CVD complications may prove useful [13, 14].

Thus, incomplete control of the signs and symptoms of CVD will be responsible for both the progression to severe stages, and a decreased quality of life of patients and, consequently, poor patient compliance with the recommended CVD therapies [5].

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