Chronic venous insufficiency: the effects of health-care reforms on the cost of treatment and hospitalisation – an Italian perspective

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SUMMARY

Objectives: This study evaluated the evolution of chronic venous insufficiency (CVI)-related costs in Italy over 8 years by focusing on the impact of the Italian health-care reforms (drug de-reimbursement) of 1993–94.

Research design and methods: The global cost of CVI to the Italian health system (Sistema Sanitario Nazionale, SSN) was divided into three sub-costs: hospitalisation, GP consultation and prescription costs. Indirect costs, such as loss of working days, were not included.

CVI-related hospitalisation costs included inpatient treatment for varicose veins, venous leg ulcers and other venous disorders. They were calculated using the US-derived system, Diagnosis Related Group (DRG), used in Italian hospitals. Calculations for the whole country were based on figures determined for the Lombardy region and extrapolated. It was considered reasonable to assume that this region was representative of the whole of Italy. CVI-related GP consultation and prescription costs were derived from Intercontinental Medical Statistics (IMS) data. These costs, pre- and post-reforms, were determined and compared to evaluate the impact of the reforms on CVI-related expenditure.

Results: Pre-reforms CVI-related costs analysis (1991): hospitalisations, €210 million; GP consultations, €35.4 million; prescriptions, €115 million. The total CVI-related direct costs (i.e. CVI diagnosis and management) were €360.4 million.

Post-reforms CVI-related costs analysis (1999): hospitalisations, €288 million; GP consultations, €13 million; prescriptions, €83 million. The total CVI-related direct costs were €384 million.

Hospitalisation costs increased predominantly due to an increase in hospitalised patients. GP consultation and prescription costs decreased predominantly due to drug de-listing. The €23.6 million increase in CVI management expense, post-reforms, was due to cost-redistribution from prescriptions and GP consultations to hospitalisations.

Conclusion: Short-term goals were achieved by the reforms, but long-term expectations were not. Drug de-reimbursement reduced both drug costs for the SSN and the number of GP consultations. Fewer patients were treated overall (mostly with advanced disease), with consequent disease worsening and increase in complications. An increase in CVI-related hospitalisation resulted. In contrast, preventative measures, including patient education and prophylactic treatment, exhibit both clinical and cost effectiveness. Larger studies are required to confirm these preliminary results.
Introduction

Notwithstanding strong commitment from European governments to provide excellent health care for all, the prevailing economic climate has meant that scarce economic and medical resources must be used effectively. Recent reforms, including those put in place in Italy, set out to establish more efficient systems for evaluating health-care costs. In the reforms, parameters such as the cost of diagnosis, pharmaceuticals, medical treatments, surgical interventions, hospitalisation, etc. are calculated and then related to benefits such as reduction of critical events, improvement in quality of life or reduction in working days lost.

Many diseases have been evaluated using the above parameters, chronic venous insufficiency (CVI) being one example. Although it is a disease which is very commonly encountered in Western countries, it is often not recognised as serious. In fact, a recent epidemiological study has revealed that more than 60% of patients suffering from CVI are never actually treated for the disorder.

CVI is the result of structural or functional abnormalities of the veins and is characterised in the early stages by the presence of symptoms and/or signs which largely impact on the quality of life of the patients and also induce loss of working days. In Germany, it was estimated that, during 1987, the total cost of CVI-related loss of working days was approximately €488 million, which amounts to 40% of the total CVI-related costs and 1.2% of all causes of lost working-days. CVI may also lead to serious late complications including venous leg ulcers, deep venous thrombosis (DVT), phlebitis or pulmonary embolism. These complications not only seriously increase the morbidity of the patients, but also require a huge amount of financial resources. Treating a case of venous leg ulcer in France will, on average, incur an annual cost of more than €36 000. In Italy, the financial burden resulting from venous leg ulcers was estimated at around €123 million, while the total direct cost of management of CVI amounted to €330 million in 1989. Because of its prevalence and its morbidity, CVI imposes a considerable socio-economic impact on health-care systems. There is clearly a need for well-defined care strategies that optimise utilisation of resources.

The objective of this paper is to examine the effects of the introduction of reforms on the health-care system that took place in Italy between 1992 and 1996 with regard to the outcomes and overall costs incurred in treating CVI. In this review, the epidemiology, diagnosis and management options are outlined. The number of general practitioner (GP) consultations, drug prescriptions and hospitalisations are compared before and after these reforms were implemented, and their related costs are explored in order to determine the effects of the reforms on health expenditure.

Chronic venous insufficiency

Epidemiology

The epidemiology of CVI has been reported in a number of studies. According to population-based epidemiological studies in various countries, 26–38% of women and 10–20% of men have varicose veins (with an increasing prevalence with increased age). Italian data, obtained from the Institute of Statistics (ISTAT), show the prevalence for varicose veins to be around 6%, ranking number three of the most prevalent diseases after allergy and hypertension. In the Framingham Study, the incidence per year of varicose veins was 2.6% in women and 1.9% in men. However, varicose veins are not the only sequelae of CVI. The condition may also manifest itself as symptoms such as itching, heavy legs, or night cramps that affect a large part of the population. More disabling are oedema, skin changes and late complications such as venous leg ulcers. Depending on age, the prevalence of CVI-related oedema and skin changes varies between 3 and 20%. In the Italian ‘Guidelines for the diagnosis and therapy of diseases of the veins and lymphatic vessels’, recurrence for venous leg ulcers after healing in the long and short term was quoted as ranging from 20 to 70%. This figure was confirmed by other guidelines which stressed a high recurrence rate of venous leg ulcers of 25% per year. In addition, there is a relationship between the CVI-related skin changes, oedema and ulceration, and deep venous thrombosis (DVT), which in itself may cause embolism.

Diagnosis and Classification

Diagnosis of CVI has long relied upon the clinical appearance of visible manifestations such as varicose veins, skin changes and ulceration, without any accurate objective investigation of the venous system to substantiate the diagnosis. The Consensus Report of the American Venous Forum in 1994 presented the CEAP classification, which addressed the Clinical (C), Etiological (E), Anatomic (A) and Pathophysiological (P) mechanisms of CVI and stressed the need for objective testing.

The clinical classification is based, on the one hand, upon the objective clinical signs of CVI according to seven classes of increasing severity, and, on the other, upon the subjective manifestations of CVI attributing to
Management

Management of CVI and the necessary treatment can follow a number of routes that may be broadly divided into ‘non-invasive’ and ‘invasive’. Despite recent interest in surgical strategies for the management of CVI and venous ulceration, non-surgical options are still overwhelmingly the primary mode of treatment worldwide.

International recommendations, in 1999, suggested that symptoms should be treated from the earliest complaints and priority should also be given to the reduction of oedema. The standard approach to the treatment of CVI includes pharmacological therapy and/or compression therapy. In fact, the Italian Guidelines recommend pharmacological treatment (phlebotropic drugs) for subjective and functional CVI symptoms and oedema. This treatment is used to reduce symptoms and signs (such as oedema), promote the healing of ulcers and prevent ulcer recurrence.

For venous leg ulcers, compression treatment is considered the basis of treatment alone, or in combination with phlebotropic drugs. Although the amount of compression applied clearly affects the progression of venous leg ulcers, its application remains difficult, especially in ambulatory conditions, because of insufficient pressure or non-compliance with the use of stockings. Several recent studies have demonstrated the clinical value of a combined approach to the treatment of venous leg ulcers. Indeed, in association with conventional treatment (i.e. compression therapy and local treatment), flavonoids have been shown to be able to reduce venous leg ulcer healing time more effectively than conventional treatment on its own. Thus, pharmacological treatment is widely used at all stages of CVI both in monotherapy (in the early stages), or in combined therapy for venous leg ulcers.

Invasive interventions include sclerotherapy and more serious surgical techniques. Sclerotherapy is widely used for the treatment of varicose veins where the aim is to eliminate pathological reflux and visible varicose veins. Various surgical techniques are employed to treat varicose veins. There is great variation in the extent of varicose veins, due to the sites of valvular incompetence. The varicose disorder is, however, progressive, which means that new varicose veins may eventually appear. After 10 years, further varicosities occur in up to 50% of all patients with primary varicose veins. A range of surgical procedures are available including: saphenofemoral junction ligation, removal of the long saphenous vein, sapheno-popliteal junction ligation, removal of the short saphenous vein, multiple mini-stab avulsions, perforator ligation and more complex and experimental types of venous reconstruction. All these procedures are obviously expensive and thus impact on hospital costs.

Quality of Life Issues

Venous disorders such as CVI exert a powerful effect on patients’ quality of life. Although patients often fail to describe their complaints or disabilities fully, many experience pain in their legs – pain associated with standing for a long time, climbing flights of stairs, carrying out household chores or sporting activities. Patients report their limbs feeling like a dead weight or suffer from poor sleep, etc. Of patients with chronic venous leg ulcers, 81% believe that their mobility is adversely affected. In the same study, venous leg ulcers were significantly correlated with absence from work and loss of employment. Moreover, there is a high loss of productivity with a reduction in the number of days worked.

In a study by Garratt et al., the investigators confirmed a significantly lower quality of life in patients with varicose veins compared with an age-adjusted sample from the normal population. Similar results were found by Launois who developed a quality-of-life questionnaire devoted to CVI: CIVIQ (Chronic Venous Insufficiency Questionnaire). This internationally validated questionnaire evaluates the frequency and severity of clinical symptoms (pain, heavy legs, functional discomfort, cramps, etc.). The CIVIQ questionnaire can also be used to evaluate the impact of drug therapy and various other forms of treatment on quality of life.
The Italian experience

Major reforms to the Italian health-care system were introduced by the Department of Health, the Servizio Sanitario Nazionale (SSN) and took effect in January 1994. These first reforms were designed to reduce expenditure on drugs in primary care. Later reforms were directed towards increasing efficiency within hospitals.

Prior to the introduction of the first reforms, patients could visit their own doctor who was permitted to prescribe any medical product considered to be appropriate treatment for CVI. These treatment regimens, whether pharmaceutical or otherwise, could be obtained at the pharmacy at no cost to the patient. The reforms were based on the classification of drugs into three categories: class A, class B and class C, depending on their perceived importance. Phlebotropic drugs were classified as class C and the effect of the reforms was to de-list the whole C class of drugs including those used to treat all diagnoses that encompass CVI. Thus, from January 1994, the cost of phlebotropic drugs was no longer reimbursed to the patient.

Further reforms to the Italian health-care system in hospital care also took place in 1994. All admissions to any public hospital services were classified according to a system based on the USA-developed Diagnosis Related Groups (DRG) system. This system employs a classification of homogeneous groups of diagnoses expected to utilise similar hospital resources, and is based on the International Classification of Disease (ICD). Patients are admitted to hospitals according to a diagnosis and are assigned a provisional DRG that is later confirmed. This DRG gives access to predefined treatment strategies and standard procedures. The classification takes into consideration age, sex and the presence or absence of complications or co-morbidities. For each DRG, a standard duration of the hospital stay is defined and considered from the budgetary point of view as a limit or ceiling. Each DRG is also assigned a subsequent financial budget. This system is employed for setting overall budgets within hospitals and for ensuring or maintaining hospital efficiency. It relies on the premise that treatment of similar medical diagnoses generates similar costs. In terms of CVI, the DRG system did not affect its clinical management but did allow the calculation of the relevant hospital costs incurred.

This study of the evolution of CVI-related costs focuses on three main items before and after, the introduction of the reforms: first, at the primary care level the GP costs absorbed by CVI (through the number of consultations that CVI induced); second, the cost of drugs prescribed in treating CVI; and third, the cost of hospitalisation due to CVI. When discussing CVI, the following diagnoses are used: varicose veins, other circulatory disorders (chronic venous insufficiency, venous leg ulcers) and thrombophlebitis.

Effect of Reforms on the Costs of CVI to the SSN

In order to better evaluate the effects of these reforms we have compared the global cost of the management of CVI to the SSN before and after their implementation, using the 1991 and 1999 data. We only assessed the direct costs and savings of the reforms, without considering the indirect costs (i.e. absence from work, etc.) that may represent up to 40% of the total cost of CVI.

The Cost of CVI to the SSN Prior to Reforms

The global cost of CVI to the SSN prior to reforms was calculated using Laing’s assessment method. He has assessed the cost of CVI to the health systems of several countries (among which was Italy) by defining the global cost in terms of three sub-costs all related to CVI: the cost of hospitalisation, the cost for GP consultations and the cost of drug prescriptions.

The Cost of CVI-related Hospitalisation

The hospital reform that introduced the DRG system is very useful for both epidemiological purposes and hospital cost evaluation since they are standardised costs. A group of investigators (Bonadeo et al.) have evaluated the number of CVI-related hospital admissions in the Lombardy region of Italy. The study investigated the number of hospital admissions associated with CVI during 1999 (after the reforms) and then reviewed similar data for 1991 (prior to the reforms).

The number and costs of CVI-related hospital admissions (including surgery) for varicose veins and venous ulcers in 1991 for the Lombardy region in Italy are shown in Table 2.

In 1991, there were 19,000 admissions in the Lombardy region classified as requiring surgical interventions for venous disease (these included venous ulcers and varicose veins). To calculate the global cost to the SSN, the tariffs for the Lombardy region set out in the 1999 DRG classifications were used since they did not exist in 1991. So, the calculation of the costs for the years 1991 and 1999 used the same price definition for ulcers and varicose veins (i.e. cost of treatment for venous ulcers – €2964; and cost of treatment for varicose veins – €1326). Thus, in 1991, hospital costs for
the treatment of CVI for the Lombardy region were approximately €33 million.

The figures obtained for the Lombardy region were then used and extrapolated to include the whole population of Italy. The region of Lombardy represents 15.9% of the total population of Italy and is considered representative of the whole country. As figures for all Italy are not readily available, we considered it reasonable to use Lombardy as a model and extrapolate these figures in order to calculate a cost for the whole country. This calculation yielded an estimate of the cost incurred by the SSN for CVI-related hospitalisation of approximately €210 million in 1991.

The Cost of Drug Reimbursement

The main classes of drugs prescribed for treating CVI are: phlebotropic agents (C5C) (the most prescribed), and the anticoagulants or anti-platelets for use in venous thrombosis (B1A/B1B/B1C). IMS (Intercontinental Medical Statistics) is a private company providing data related to the pharmaceutical markets. Their panels evaluate, for a pre-determined period of time, both the number of consultations/year and the number of units/year prescribed by primary care physicians (i.e. GPs). The cost of drug reimbursement due to CVI in 1991 was calculated (for the B1A, B1B, B1C and C5C classes) to be €115 million in 1991, with €30 million of the total due to the C5C class.

The Cost of CVI-related GP Consultations

To calculate the cost of CVI-related GP consultations in 1991, we took the total number of GP consultations due to CVI (IMS data) and multiplied it by the cost of one consultation (€2) and therefore estimated the cost of these consultations to the SSN to be €35.4 million. The cost of one consultation is using today’s prices (source from La Società Italiana de Medecine Generale) and may have changed since 1991. Nevertheless, we can calculate the global direct cost of CVI for the SSN prior to the reforms by totalling the cost of CVI-related hospitalisation (€210 million), drugs prescribed (€115 million) and GP consultations (€35.4 million) which comes to €360.4 million.

Figure 1 charts the number of CVI-related consultations for each year from 1991 until 1999 (IMS/SPM data). It is clear that, following the introduction of the reforms (i.e. phlebotropic drug de-listing), during 1994 the number of GP consultations fell dramatically (only the C5C class was de-reimbursed). For the next 8 years, consultations remained at approximately 1994 levels with a slight tendency to decline even further.

<table>
<thead>
<tr>
<th>Year</th>
<th>1991</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of patients treated in hospital for varicose veins/ulcers</td>
<td>19,000</td>
</tr>
<tr>
<td>Admissions for ulcers</td>
<td>4,800</td>
</tr>
<tr>
<td>Cost of individual ulcer treatment (DRG)</td>
<td>€2,964</td>
</tr>
<tr>
<td>Total cost of treating ulcers</td>
<td>€14 million</td>
</tr>
<tr>
<td>Admissions for varicose veins</td>
<td>14,200</td>
</tr>
<tr>
<td>Cost of individual varicose vein treatment (DRG)</td>
<td>€1,326</td>
</tr>
</tbody>
</table>

Table 2. The number and costs of hospital admissions for CVI (including surgery) for varicose veins and venous ulcers in 1991 for Lombardy, Italy30

Figure 1. Number of CVI-related GP consultations/year (1991 to 1999) (IMS/SPM data)
The Direct Savings for the SSN Due to the Reforms

The direct savings for the SSN therefore involved both GP consultations and the C5C class drug prescriptions. GP consultations dropped by 44% in the year following the reforms and reached 63% in 1999 (6.5 million (1999) vs 17.7 million (1991)). In 1991, the cost of these consultations was €35.4 million. Therefore, the direct saving was €22.4 million compared to the cost in 1991. The prescription of C5C drugs also subsequently fell following the reforms (Figure 2).

Figure 2 plots changes in the number of packs of C5C drugs sold from 1991 until 1999. It has to be assumed that the distribution of the various packs available remained constant over the study period. After a 2-year period (corresponding to the time of implementation and application of the reforms) the level of CVI-related drug prescriptions had decreased by around 30%. Therefore, approximately one-third of the CVI patients were no longer treated with pharmaceuticals for their disease. On the other hand, if we speculate that this parameter remained stable during the next 6 years up to 1999, we can say that two-thirds of the patients considered the disease serious enough to assume the cost for their CVI drugs themselves.

In 1999, the cost for drug prescriptions related to CVI (excluding de-reimbursed phlebotropes) was €83 million, compared to the €115 million (including phlebotropes) in 1991 (see above). Thus, we can calculate that, in 1999, the savings to the SSN from reduced drug prescriptions were €32 million.

Therefore, Italy’s health reforms in 1994 created a direct saving (i.e. in terms of GP consultations (€22.4 million) and C5C prescriptions (€32 million)) of €54.4 million per year. However, it also had two indirect consequences:

1. A reduction in the management and treatment of the disease (i.e. fewer patients (30%) were treated for their disease without there being a reduction in the disease prevalence)
2. A reduction in the assessment of the early signs and symptoms of CVI disease (demonstrated by a reduction in CVI-related GP consultations following the reforms).

The Cost of CVI to the SSN after the Reforms

For the purpose of the comparison we again applied Laing’s evaluation system, thereby calculating the cost of CVI in hospitals, in GP consultations and in drug prescriptions (which excludes the C5C costs taken on by the patients themselves) to the SSN in 1999.

The Cost of CVI to the SSN in Hospitals in 1999

To assess this cost we used the 1999 data from Bonadeo’s group of investigators that calculated the costs incurred in treating CVI in hospitals in the Lombardy region (Table 3). The investigators recorded that, in 1999, 26,000 patients attended hospital for treatment of venous disease. When we extrapolated the Lombardy region’s figures (using the 1999 DRG price definition) to the whole population of Italy we obtained a total cost for CVI-related hospital treatment, in 1999, of €288 million.

![Figure 2. Number of C5C packs sold for each year from 1991 until 1999 (IMS/SPM data).](image-url)
The Cost of CVI-related Consultations to the SSN after the Reforms

As stated above, CVI-related consultations had decreased by 63% in 1999 from 1991 levels. The cost of the remaining GP consultations was therefore estimated to be €13 million to the SSN, using the figure of €35.4 million in 1991.

The Cost of CVI-related Drug Prescriptions to the SSN after the Reforms

Using IMS data, the cost of CVI prescription drugs to the SSN was calculated to be €83 million (see above). Therefore, the total cost of CVI to the SSN after the reforms (calculated by adding the cost of hospitalisation (€288 million), GP consultations (€13 million) and drug prescriptions (€83 million)) was €384 million.

The Overall Assessment of the Italian Health Reforms

We then assessed the overall economical impact of these health reforms (Figure 3).

The health reforms created a direct saving of €54.4 million per year due to the de-reimbursement of the C5C drug class and the reduction in number of consultations. However, the global cost of CVI per year for the SSN, even when taking this saving in drug prescriptions into consideration, increased by €23.6 million after these reforms due to an increase in hospitalisation costs of €78 million. It can be seen (in Figure 3) that, after the reforms, there was a redistribution of costs from CVI-related consultations and drug prescriptions to hospitals.

It should be noted that the calculation shown in Figure 3 makes no allowance for any additional loss of revenue to the government from loss in income taxation due to absence from, or inability to work, and makes no allowance for any other ‘quality of life’ parameters.

Discussion

The goal of the 1994 health reforms of the Italian Government (the SSN) was to create savings in annual health expenditure. The short-term result was a considerable cost saving to the SSN. Indeed, following the reforms, the saving, in terms of prescription and GP consultation costs, was some €54.4 million. The undisputed facts are that the number of diagnoses of CVI in general practice fell from 17.7 million (in 1991) to 6.5 million (in 1999) with a marked reduction (28%) in CVI-related drug prescriptions.

When the figures are examined a mere 5 years after the reforms were introduced, there is a large increase in the number of patients requiring hospital treatment for CVI-related disease (including serious surgical interventions for ulcers and varicose veins). The cost of hospitalisation due to CVI to the SSN increased from €210 million in 1991 to almost €288 million in 1999 (an increase of nearly €80 million). Thus the costs of treating CVI appear to have shifted from the community to the hospital sector. Within a few years, a
short-term decrease in expenditure of some €54.4 million was translated into a €78 million increase in hospital costs and a €23.6 million overall increase in total costs.

It should be recognised that, by using the DRG price index for 1999 and applying it to 1991, the cost for CVI-related hospitalisation might well have over-estimated the real cost. Therefore, in reality the difference between the 1991 and 1999 costs might actually be larger than we have calculated.

It is important to note that these figures do not consider any other economic factors such as loss of productivity or absenteeism due to the condition. The reduction in early detection and intervention resulting in the increased health-care costs and inpatient disability is also associated with a significant decrease in patients’ quality of life. It has been reported previously that, of the 50 most commonly quoted reasons for temporary absence from work, CVI was ranked 14th and, as a cause for permanent disability and public financial assistance, it was the 32nd most frequent.

Moreover, these figures do not consider that any possible transfer of prescriptions to other therapeutic classes might have occurred. One hypothesis is that, although not recommended for use in venous disease, analgesics and anti-inflammatories (not de-reimbursed) could have benefited from this situation and therefore further limited the economical impact of the reform. The impact of this parameter deserves to be evaluated individually.

In order to explain the increases in cost, it is important to remember that CVI is a progressive disease; indeed it is well documented that a significant number of varicose veins deteriorate to become varicose ulcers. One of the factors leading to the overall increase would appear to be that the patients were diagnosed and treated at a point when their disease had progressed to a more serious level. The surgical treatment of varicose veins and ulcers, like all surgery, is associated with risks to the patients themselves. Several authors have pointed out the importance of diagnosing and treating CVI in its early stages in order to avoid the later more severe complications. One epidemiological study, the RELIEF study, showed that 78% of symptomatic patients with CVI had never had any treatment before entering the study. In addition, as already stated, a study in Poland recognised that 60% of symptomatic patients with CVI are never treated. As a consequence of this lack of treatment, the most severe stage of CVI today affects 0.3–1% of the adult population.

It would, therefore, seem reasonable to assume that, in Italy, early diagnosis and treatment would have alleviated considerable suffering of patients in the long-term. Early diagnosis and treatment also appears to make sound economic sense. A study in the USA has shown that preventive treatment in patients with prior venous ulceration (treated) results in a saving of $17,000, during a patient’s lifetime, for every working day gained and is thus both clinically and cost-effective.

Following the reforms introduced in Italy in late 1993/early 1994, it can be concluded that patients gradually became aware of the situation with which they were faced (i.e. the choice of either continuing to treat themselves with medicine obtained directly from the pharmacy (at their own expense) or to cease taking any medication at all). It is possible that once patients became aware that certain medical conditions were not considered serious enough to warrant reimbursement, they then became more reluctant to consult their doctor. When patients no longer consult their doctor, any deterioration in the condition of veins or ulcers will no longer be examined or treated. This may therefore hasten the progression of the disease.

It is important to note that all calculations are based on a number of assumptions. It has been assumed that the region of Lombardy is representative of the whole of Italy and that the distribution of CVI is homogeneous throughout the country. It could be suggested that other changes that took place between 1991 and 1999, such as increased awareness of ulcers or varicose veins, may have increased demand for hospital treatment. However, overall we are confident that the picture of the changes that took place in Italy is a true reflection of events. In addition, this evaluation provides, for the first time, an idea of the evolution of the global costs of CVI in Italy.

**Conclusion**

In 1993/94, reforms were made to the Italian health system in order to reduce costs for the treatment of CVI. One of these reforms was the de-reimbursement of phlebotropic drugs (the mainstay of treatment of CVI in Italy). By analysing the Italian experience before, and after, 1994, we can evaluate the effect these reforms had in terms of health-care costs. In so doing it is seen that, although the goal of the Italian health reforms was to reduce costs, the reality was such that the de-reimbursement of phlebotropic drugs resulted in the opposite, namely increased costs for the treatment of CVI. Further studies are required to confirm these preliminary results on a larger scale.

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