ORIGINAL ARTICLE

CONTENTS

Method of conservative treatment of chronic venous insufficiency and post-thrombophlebitic syndrome of the lower extremities

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ABSTRACT

Aim: To develop of a new complex of conservative techniques that eliminate clinical manifestations of chronic venous insufficiency, preserve the ability to work and improve the quality of life of patients, being the main method of preoperative preparation and postoperative rehabilitation in some patients.

Materials and Methods: The article describes clinical and practical recommendations for the diagnosis and treatment of patients with chronic venous insufficiency (CVI) and post-thrombophlebitic syndrome (PTS) of the lower extremities. The treatment of these pathologies should take into account the variability and combination of symptoms, comorbidities, as well as the patient's work activity and socioeconomic factors that may affect the modification of classical treatment regimens.

Results: The examination and treatment of patients with this pathology has been carried out at the surgical department of the Poltava Central District Clinical Hospital since 2019 year. On the basis of a complex ultrasound examination with the determination of reflux in the deep and superficial veins of the lower extremities and horizontal reflux in the perforating veins, patients were divided into two groups. The first group consisted of 28 (57.1%) patients with superficial and the second group of 16 (42.9%) patients with deep venous hypertension.

Conclusions: The main component of the conservative treatment of this pathology (CVI and PTS) is compression therapy, venotonics, medicines that improve microcirculation in the affected tissues, laser therapy, salves and gels were used locally, depending on the phase of the wound process, in case of trophic changes.

KEY WORDS: chronic venous insufficiency, post-thrombophlebitic syndrome, venotonics, laser therapy, regenerative degenerative index

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INTRODUCTION

Vein diseases are an extremely important medical and social problem. Epidemiological studies conducted at the initiative of the Association of Angiologists and Vascular Surgeons have shown a high prevalence of chronic lower extremity vein disease (CLVD) in Ukraine [1, 2]. CVI of the lower extremities is characterised by symptoms such as pain, heaviness in the legs, cramps, paresthesias, swelling of the extremities, and lower extremity fatigue syndrome. The cosmetic problems of CVI include telangiectasia, reticular varicose, edema and skin changes such as pigmentation, dermatitis and, ultimately, the formation of trophic ulcers [3, 4].

The incidence rate is dominated by women. In the United States, 23% of adults have varicose veins, of which 6% have severe signs of chronic vein disease, including skin lesions in the form of trophic ulcers [5, 6].

Varicose veins are a common manifestation of CVI, resulting from pathological stretching of the connective tissue in the vein wall. Primary varicose dilatation with valve damage develops without preceding deep vein thrombosis (DVT), secondary varicose dilatation is a consequence of DVT and, rarely, thrombophlebitis [6, 7].

Recanalisation can give rise to relative obstruction and reflux in deep, superficial and perforating veins. Approximately 30% of patients with deep venous reflux develop valve failure [5, 8].

The incidence of post-thrombotic syndrome after DVT in 3-4 years is 35-70% and 50-95% in 5-10 years, depending on the extent and location of thrombosis and treatment [7, 9, 10].

The significant social and economic problem of CVI is caused by the number of patients, the high cost of research and treatment, and the consequences of the disease such as disability and reduced quality of life. The problem is exacerbated by the fact that CVI is a progressive disease with a strong tendency to relapse [8, 9, 10].

The proposed method of complex treatment of a certain pathology is based on clinical effectiveness and financial cost-effectiveness.

AIM

The development of a new complex of conservative techniques that eliminate clinical manifestations of CVI, preserve the ability to work and improve the quality of life of patients, being the main method of preoperative preparation and postoperative rehabilitation in some patients.

MATERIALS AND METHODS

The examination and treatment of patients with this pathology has been carried out at the surgical department of the Poltava Central District Clinical Hospital since 2019 year.

On the basis of a complex ultrasound examination with the determination of reflux in the deep and superficial veins of the lower extremities and horizontal reflux in the perforating veins, patients were divided into two groups. The first group consisted of 28 (57.1%) patients with superficial and the second group of 16 (42.9%) patients with deep venous hypertension.

In patients with deep venous hypertension, the size of trophic ulcers was greater (Table 1).

The actuality of CVI therapy is due to the following aspects:

1) most patients require only conservative treatment;

2) secondary prevention of relapse and complications of the disease secondary prevention of relapse and complications of the disease.

The treatment was based on the elimination of the following pathological factors:

- reduction in the volume of the venous bed
- elimination of pathological refluxes
- macro- and microcirculatory disorders
- leukocyte activation and inflammation
- correction of haemodynamic conditions
- disorders of lymphatic discharge
- local treatment of trophic ulcers

The main focus was also on compression treatment, regardless of the degree of venous insufficiency and its etiology. The results of the effectiveness of the proposed treatment were evaluated by the dynamics of local changes in the wound process and cytological studies of trophic ulcers according to the regenerative degenerative index (RDI) [1, 2].

RDI=(band neutrophils+segmented neutrophils)/ degenerative neutrophils.

If the RDI is less than 1, the wound process is characterised by a significant inflammatory process, and vice versa, if the RDI is greater than 1, the inflammatory process enters the phase of granulation tissue formation and scarring of trophic ulcers.

RESULtS

The programme of conservative treatment of decompensated CVI includes physiotherapy and sanatorium treatment, a gentle regime with the lower limbs necessarily elevated at the beginning of treatment. Local treatment depending on the phase of the injured area and trophic skin changes. Compression bandage, after nutrition – elastic knitwear.

The main tasks of conservative therapy in CVI and its complications.

The combination of a large number of methods of medical and functional treatment of the pathology under study is described in Table 2. It is very important to treat all symptoms of the disease with correct methods and to combine them correctly. To correct micro- and macro-circulatory disorders of rheology and lymphatic drainage, venotonics Detralex (LES LABORATOIRES SERVIER INDUSTRI, France, diosmin, hesperidin) and Escuzan (ESPARMA GMBH, Germany, Horse Chestnut Seeds Extract) were used. To increase the tonus and resistance of the vascular wall, venous bed and stimulate lymphatic drainage, Detralex (1000 mg) was prescribed once a day, as well as the Ukrainian drug Normoven. Trental (CHINOIN PHARMACEUTICAL AND CHEMICAL WORKS PRIVATE CO. LTD., Hungary, pentoxyphylline) and Rheopolyglucine (YURIA-PHARM LLC, Ukraine, dextran) have also been used to improve blood circulation and improve the rheological properties of blood. Troxevazin (BALKANPHARMA-RAZGRAD JSC, Bulgaria, troxerutin) has been used for anti-inflammatory and antioxidant purposes (Table 2).

Local treatment of trophic changes should be performed taking into account complications. Types of complications and combinations of medications used in the study are shown in Table 3.

Miramistin (PRJSC «PHARMACEUTICAL FIRM «DARNITSA», Ukraine, miramistin), Cadefort spray powder (PAVIA FARMACEUTICI SRL, Italy, silicon dioxide in combination with silver ions and chlorhexidine), Tyrosur gel (ENGELHARD ARZNEIMITTEL GMBH & CO. KG., Germany, thyrotricin) are used for cleaning and regeneration and have a bacteriostatic or bactericidal effect. The use of antiallergic therapy in the form of Tavegil (TAKEDA AUSTRIA GMBH, Austria, clemastine fumarate) together with antifungal drugs Intracon (FARMAK JSC, Ukraine, intraconazole), Mycoseptin (ZENTIVA, Czech Republic, undecylenic acid) or Clotrimazole (DELPHARM POZNAN S.A., Poland, clotrimazole) is an important

Table 1. Sizes of trophic ulcers in patients with deep venous hypertension

Diameter of trophic ulcer (DTU), cm	first group (28 patients)	second group (16 patients)
2<DTU<5	22 (79%)	4 (25%)
5<DTU<10	4 (14%)	6 (37,5%)
DTU>10	2 (7%)	6 (37,5%)

Table 2. Objectives of therapy in CVI

Objectives	The main treatment measures
Exclusion of risk factors	Correction of lifestyle, nutrition, rational employment
Improvement of phlebohemodynamics	Therapeutic exercise, compression therapy
Normalisation of venous wall function	Pharmacotherapy, compression treatment
Correction of micro and macro circulatory disorders of rheology and lymphatic drainage	Venotonics (Detralex, Escuzan), Pharmacotherapy (Trental, Rheopolyglucin), Flavoids, Physiotherapy.
Reduction of inflammatory changes	Rutosides (Troxevazin). Local laser therapy.

Table 3. Local treatment of trophic ulcers

Trophic ulcer without complications	Complicated trophic ulcers	
	Allergic contact dermatitis	Microbial eczema
For cleansing and regeneration (Miramistin, Cadefort spray powder, Tyrosur gel)	Medications with antihistamines (Tavegil). Topical treatment - Methylene blue solution around the ulcer, Boric acid lotions around the ulcer. Topical glucocorticosteroids - Flucinar, Lorinden. Laser therapy.	Antihistamines. Antimycotic drugs - Intracon. Topical antimyotics: Mycoseptin, Clotrimazole. Laser therapy.
Compression therapy	Compression therapy	Compression therapy

combination in the treatment of complications of trophic ulcers (Table 3).

In patients with trophic ulcers on the background of CVI, local laser therapy was used with the MIT-1 apparatus using red laser irradiation of 0.65 μm and infrared laser irradiation of 0.8-0.86 μm.

Laser irradiation locally restores the permeability of nerve endings, activates blood circulation and metabolism in tissues.

All of this together makes it possible to prepare patients for surgical correction of pathological reflexes, but also forces them to change their lifestyle, using the permanent pharmacotherapy offered.

DISCUSSIONS

Some researchers in the treatment of chronic venous insufficiency and post-thrombophlebitic syndrome prefer conservative treatment. Intermittent pneumatic compression (IPC) and topical wound care is important in venous stasis ulcer management. Unna dressings (zinc oxide-impregnated bandages), compression dressings and occlusive dressings (e.g. hydrocolloids such as aluminium chloride) provide an environment for wound healing and promote new tissue growth; they can be used for ulcers with light to moderate exudation [11, 12]. But we should not forget about more radical methods of treatment such as percutaneous transluminal venoplasty and ultrasound – accelerated thrombolysis. These methods led to successful recanalisation of chronic venous obstruction with improved post-thrombotic syndrome severity and quality of life, and the results were stable for 1 year after the procedure. It should be noted that the primary pathological effects were major bleeding episodes within 72 hours and symptomatic pulmonary embolism [6]. The study comparing endovenous laser ablation (EVLA) and n-butyl cyanoacrylate (NBCA) interventional techniques in terms of benefits, efficacy and patient satisfaction is quite interesting. The liquid embolic system based on n-butylcyanoacrylate is a modern and aggressive method used in the peripheral circulation for embolisation of vascular and lymphatic pathology, arterial pseudoaneurysms, endoleaks and vascular tumours. This method has unpredictable complications, including off-target embolisation, venous migration, microcatheter blockage and catheter retention. Therefore, before using it, it is necessary to compare the clinical effectiveness of its use with the possibility of developing severe pathological effects [4]. Functional treatments and physiological methods of investigation include kinesotaping and determination of ankle-brachial pressure index (ABPI), Duplex scan and tcPO2 measurements [8]. However, despite the large number of conservative and surgical methods of treating chronic venous insufficiency, we studied the combination

of conservative medical methods of treating the underlying and concomitant pathology, taking into account a specific laboratory indicator. RDI (regenerative-degenerative index) is a predictor of cytological changes in the wound process.

RDI= (band neutrophils+segmented neutrophils)/ degenerative neutrophils.

If RDI<1, then the wound process was characterized by significant inflammatory responses, and vice versa, if RDI>1, the inflammatory process passed into the regeneration phase. Counting cells on wound impression preparations was performed by D.M. Steinberg (1948) [2].

CONCLUSIONS

1. The main component of conservative treatment of chronic venous insufficiency in the stage of decompensation, regardless of the form of venous hypertension, is compression therapy.
2. The complex of treatment methods used made it possible to significantly reduce the treatment time.
3. Venous trophic ulcers complicated by contact dermatitis and microbial eczema require special treatment with antihistamines, topical glucocorticoids and antimycotic drugs.

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CONFLICT OF INTEREST

The Authors declare no conflict of interests

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