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Compression therapy after phlebological treatment

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ABSTRACT

Compression therapy is a standard use in patients with an advanced chronic venous insufficiency in order to aid venous ulcers or to prevent ulcer recurrence. Nevertheless, there exists only low evidence for the use of compression therapy in patients with uncomplicated varicose veins even though there has been reported a high recommendation. Especially the duration of time remains unclear. The article gives an overview about the actual literature. Overall it seems that a compression therapy after phlebolgical interventions has a benefit. Nevertheless, the evidence is very low and the postoperative use is based on experience. Especially for patients with symptoms and oedema the application of compression stockings may have an advantage.

Contents

1. Introduction

Compression therapy is a standard use in patients with an advanced chronic venous insufficiency in order to aid venous ulcers or to prevent ulcer recurrence [1,2]. Nevertheless, there exists only low evidence for the use of compression therapy in patients with uncomplicated varicose veins (C1-C2 according to the CEAP classification). Compression therapy should be routinely used after phlebological interventions, according to the guidelines of the German Society of Phlebolgy [3]. Only a few contraindications e.g. peripheral arterial occlusive disease, decompensated cardial insufficiency, septic phlebitis or phlegmasia coerulea dolens are known [4,5]. Normally, there will be used compression stockings or compression bandages. Furthermore, a so-called “eccentric compression” due to the use of foam pads to obtain a higher pressure, has been described [6]. Bandages are commonly used directly postoperative and after the first postoperative visit the compression therapy will be changed to compression stockings [7].

Compression therapy should lead to a lower incidence of thrombophlebitis after crossectomy and stripping of the great saphenous vein [8]. Furthermore, residual veins should be compressed in order to prevent recurrences [5,6]. It has been stated that a compression therapy after crossectomy and stripping should reduce the postoperative pain, haematoma and oedema [9–11]. Moreover, patients should have fewer swelling, oedema and cramps and a higher quality of life [12]. Furthermore, postoperative complications after sclerotherapy like thrombophlebitis, pigmentation or matting should be reduced too. In this context a compression therapy after sclerotherapy should also lead to a better outcome by the reduction of the lumen of the treated veins [6], although compression stockings should lead to a better occlusion than bandages [13].

The guidelines of the German Society of Phlebolgoy recommend the use of a compression therapy after phlebological treatments with an evidence level of 1 A [3,14]. However, there is

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no recommendation for the length of time in these guidelines [3]. On one hand there exists a recommendation in the literature for a period of 3 weeks postoperatively [15]. On the other hand it has been stated that, this period can vary between 2 and 6 weeks [16,17]. Nevertheless, the NICE guidelines recommend a compression therapy after interventional treatment for not longer than 7 days although only 2 studies have been included in the review [18]. Moreover, the clinical practice guidelines of the Society of Vascular Surgery and the American Venous Forum recommend a period of compression for one week too [2]. Nevertheless, the evidence level for an additional compression therapy after phlebological treatments is very low and only a few studies concerning the compression period have been published [16].

2. Material and methods

A systemic review was done in Pubmed. Keywords were compression therapy and varicose veins. About 1230 studies have been found. Most of them deal with compression therapy in chronic venous insufficiency and not with compression therapy after phlebological interventions in patients with lower classes of the CEAP classification. Only a few studies have been found and will be described.

3. Results

After surgical treatment of varicose veins there exist only a few recent studies:

In a prospective, randomized open-label clinical trial a special compression kit with stockings with an ankle pressure of 23–32 mmHg was compared with bandages in sixty patients with unilateral varicose veins who underwent crossectomy and stripping of the great saphenous vein. An additional cotton roll was applied in both groups to create eccentric pressure. The duration of compression therapy was 2 weeks. Interestingly, there was not found a statistical difference for postoperative pain. However, one week after surgery there was significant less oedema in the stocking group. Furthermore, these authors stated that patient's acceptance and quality of life was better in the compression stocking kit group [19].

Mosti et al. described this eccentric compression. Fifty-four patients were randomised into three groups after crossectomy and stripping of the great saphenous vein. One patient group was treated postoperatively with compression stockings with an ankle pressure of 23–32 mmHg. The second group has to wear bandages and the third group was treated with newly eccentric compression pads and additional compression stockings on top. Pressure values were measured immediately postoperatively and 7 days later in lying and standing position. The highest pressure values, up to 98 mmHg postoperatively measured in standing position, were found in the eccentric compression group. After one week the pressure value go down to a median value of 59 mmHg. These pressure values were statistically higher than those in the other groups. In the stocking group the median pressure value of 16 mmHg in standing position go down to 14 mmHg after 7 days. In the bandage group median values of 63 mmHg in standing position decreased to a median pressure value of 31 mmHg after one week. These authors reported that the incidence of pain and oedema was lower in the eccentric compression group, most likely due to the higher pressure. On the other hand skin irritations and blisters were more frequent in this group [20].

Concerning the length of time for the use of compression stockings there exist two studies.

After crossectomy and stripping of the great saphenous vein 104 patients with great saphenous vein class 2–3 according to the CEAP classification were included into the study. All patients were treated with elastic bandages for 3 days postoperatively including a selective compression of the great saphenous vein duct at the thigh by enroled gauze. Afterwards a control group was treated with compression stockings with 23–32 mmHg for additional four weeks. Patients should wear the stockings day and night for the first two weeks and afterwards only daily. Concerning the postoperative pain and postoperative complications like bleeding, infection or seroma there were no differences between the two groups. Nevertheless, four weeks postoperatively there was a significant reduction of the leg oedema in the compression group, whereas interestingly the duration of time off work was longer [21].

Biswas et al. investigated 220 patients after crossectomy and stripping of the great saphenous vein. All patients were treated with compression bandages for 3 days postoperatively. Afterwards one group has to wear compression stockings for 1 week and the intervention group for three weeks. They used anti-embolism stockings with a pressure of 18 mmHg at the ankle. In contrast to the study, outlined above, there were no differences in the duration of time off work or patients satisfaction. Nevertheless, one week postoperatively the authors described a significant higher pain in the group wearing compression stockings for only one week even though the consumption of analgesia consumption was higher in the intervention group [22].

The summary of these studies is shown in Table 1.

After endovenous laser ablation of the great saphenous vein there exists one randomized trial including 200 patients. All patients were treated with a compression stocking with 35 mmHg. A special eccentric compression procedure has been used in the intervention group by the application of strips, gauzes and tapes. Patients were treated for one week after the endovenous procedure. Postoperative pain and the amount of analgesics were significantly lower in the group with the eccentric compression. Nevertheless, in this group ecchymosis were descried in 37% [23].

Concerning the compression therapy after sclerotherapy following studies have been published:

Hamel-Desnos et al. treated 60 patients with insufficient great or small saphenous veins by sclerotherapy. Afterwards one group has to wear compression stockings for 3 weeks during the day while the other group receives no compression therapy. Compression stockings

Table 1

Study	Patients	Compression	Time	Results
Houtermans-Auckel (2009)	96	3 days bandage 23–32 mmHg	3 days vs. 4 weeks	Reduction of the leg volume, less disability without compression
Mariani (2011)	60	23–32 mmHg vs. bandage Both + eccentric pads	2 weeks	No advantage, reduction of the edema
Biswas (2007)	220	3 days bandage TED stockings	1 week vs. 3 weeks	No advantage, less analgesic tablets with compression
Mosti (2009)	54	23–32 mmHg vs. bandage vs. 23–32 mmHg + eccentric pads	1 week	Reduction of hematoma and pain