

EVALUATION OF A TUBULAR COMPRESSION SYSTEM AS AN ALTERNATIVE FOR COMPRESSION BANDAGES FOR VENOUS LEG ULCER PATIENTS

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Introduction:

Compression therapy is mainstay in the treatment and prevention of lower limb oedema, varicose veins, and venous ulcers.^{1,2} For compression bandaging to be effective, a thorough assessment of the underlying pathology and impact on patients' life must be conducted and staff needs to be trained to apply bandages adequately.² In daily practice, in a community setting, working with a wide variety of professionals, with different levels of education, it may be a challenge to deliver effective compression therapy. Studies have shown that the interface pressure exerted by the compression system on the leg already decreases a few hours after application of the bandages.³ Application of compression bandaging may be time consuming, especially when re-application is to be done several times a week. Moreover it may be difficult for patients to wear their shoes.

A pilot study was conducted to evaluate if a tubular compression system could be an alternative for compression bandages in ambulant venous leg ulcer patients.

Methods:

A two layer *tubular compression system used for the study. The first layer of the system delivers 10 mm Hg and the top layer, which is removed during the night, delivers 30 mm Hg (Fig. 2). Twenty patients (n=15 female; n=5 male) with venous leg ulcers and an ABI >0.8 were included in the pilot after they had consented. Patients were followed weekly for six weeks evaluating the following:

- Patient reported pain (VAS: - = no pain; +/- = moderate pain; + = pain; ++ = severe pain)
- Patient reported comfort (- = no comfort; +/- = moderate comfort; + comfortable; ++ very comfortable)
- Reduction of oedema (- = no reduction; +/- = moderate reduction; + good reduction; ++ excellent reduction)
- Concordance (- = no concordance; +/- = moderate concordance; + good concordance; ++ excellent concordance)

Additionally before and after digital photographs were assessed by one and the same clinician, who was blinded for the treatment given.

Patient nr.	Comfort				Oedema				Pain				Compliance			
	-	+	++	+++	-	+	++	+++	-	+	++	+++	-	+	++	+++
1		o				o									o	
2		o				o					o				o	
3				o			o				o					o
4				o		o					o					o
5				o		o					o					o
6				o		o					o					o
7				o		o					o					o
8				o		o					o					o
9			o								o					o
10		o					o				o			o		
11				o		o					o					o
12				o		o					o					o
13		o									o					o
14				o		o					o					o
15			o								o					o
16				o		o					o					o
17				o		o					o					o
18				o		o					o					o
19				o		o					o					o
20				o		o					o					o
Total	0	4	2	14	17	1	2	0	14	6	0	0	1	1	1	17

Table 1: Mean score on patient reported comfort, pain, oedema reductie and compliance

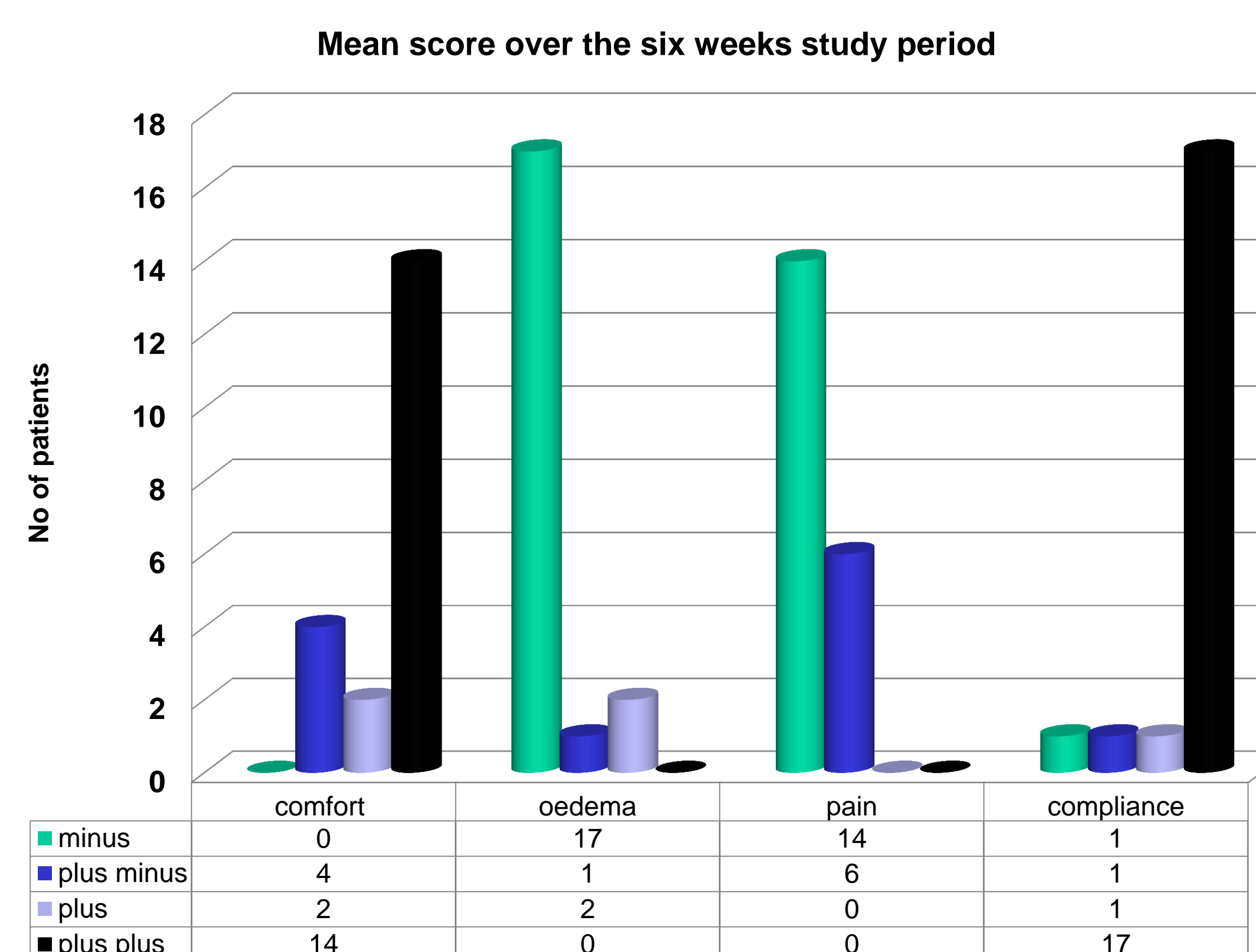


Fig 1: Mean score per patient over the six weeks study period

Results :

During the six week study patient reported pain had reduced significantly (n=14: no pain; n=6: +/-). At the start of the study the six patients that reported pain, all had lateral ulcers. The pain occurred when applying the second layer of the compression system. Comfort of wearing the compression system was high for n=16. The four patients that reported moderate comfort all had an arterial component and previously had shown non-concordance with using compression bandages. Oedema reduction was effective (n=17: no oedema), after six weeks of treatment. Two patients had moderate oedema and one patient had slight reduction of oedema. This patient had poor mobility, was obese and had cardiac failure. Concordance was good in n=17 with one patient that needed time to get used to the treatment (Table 1 and Fig. 1).

Fig. 4 – 7 shows a typical patient that was treated for six weeks with the tubular compression system.

Conclusion :

The results indicate that the tubular compression system can be an effective alternative for compression bandaging. Treatment is to be coordinated and patients require follow up visits once weekly to obtain optimal results. A prospective study is to be planned to confirm these findings.



Fig. 3: Application of the 2-layer tubular compression system



Fig. 4: Ulcer condition at the start. There was moderate oedema present.



Fig. 5: Ulcer condition after 4 weeks.



Fig. 6: Ulcer condition after 4 weeks.



Fig. 7: Ulcer is almost closed after 4 weeks.

References :

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