Intermittent Pneumatic Compression in the Treatment of Inoperable Patients with Chronic Limb Ischemia

R. Avrahami, M. Goldstein, G. Ciback, B. Bsharah, A. Zelikovski

Department of Vascular Surgery, Rabin Medical Center, Beilinson Campus, Petah Tikva, Israel

Background: Recent data indicates that intermittent pneumatic compression (IPC) enhances arterial blood flow in legs with critical limb Ischemia and non-healing wounds. This method, which applies impulse compression, based on high pressure, rapid inflation technology becomes more and more an option in treating patients not suitable for reconstructive surgery.

Methods: We report a pilot study in 5 patients with severe PAD or non-healing wounds. Patients were asked to use the device at home for 2.5 hours daily for 5 months.

No.	Age	Symptoms & Signs	Surgery	Outcome
1	56	Ischemic Wound	S\p Bypass (BP)	90% healing
2	81	Ischemic Wound	S\p BP, s\p leg amp.	90% healing
3	44	Severe PVD	S\p BP	Improved walking + ABI +20%
4	70	Severe PVD	S\p BP	Improved walking
5	81	Severe PVD		Improved rest pain

Comments: Recently, external pneumatic compression has been shown to significantly aid in the treatment of PAD. Improvements both clinically and hemodynamically were observed.

This concept explained by the dramatic increases in the skin perfusion and volumetric arterial blood flow. The mechanisms behind these effects are intended to be:

- ☒ Simulates brisk walking and exercise and finally induces collateral formation.
- ☒ Increased arterial-venous gradient pressure
- ☒ Endothelial release of vasodilatory, antithrombotic and fibrinolytic substances due to the pulsatile flow caused by rapid pressure.
- ☒ Abolition of the veno-arteriolar reflex and reducing the peripheral resistance.
- ☒ Reduction of edema by compressing the underneath tissues.

Conclusion: IPC appears promising and may be useful in augmenting walking ability diminishing rest pain and accelerating ulcer healing.