Compression Pump Studies – Venous Insufficiency

Study of Sequential Compression Therapy in the Treatment of Non-Healing Chronic Venous Ulcers
By, Gerit Mulder, DPM, MS, James Robison, DPM and Jeannie Seeley, RN

Abstract:
Approximately 700,000 Americans suffer from venous ulcers which are associated with a high rate of morbidity and mortality. The most common treatment modalities for the lower extremity venous disease are compressive stockings, medicated wraps, elastic bandages, and superficial wound dressings. With the use of these modalities most physicians are frustrated with the rate of complete lack of progression of venous ulcer healing. Studies have shown intermittent pneumatic compression devices IPC to be efficacious in the prevention of postoperative thrombo-embolic disease in high risk patients. IPC improves the venous return in the lower extremities and is believe to improve fibrinolytic activity within the blood vessels.

It was the objective of this study to determine if intermittent sequential pneumatic compression which addresses the underlying pathology could expedite the closure of chronic venous ulcers.

Conclusion:
Daily use of the SCD Therapeutic System resulted in a significant reduction in the wound area in the venous ulcers which were previously resistant to Unna’s boot treatment. This effect surpassed that of conventional compression and our wound dressing modalities used on chronic venous ulcers occurred by addressing the underlying pathophysiology. The beneficial treatment effect was due to the daily use of the device because these patients received regular Unna boot treatment but, were not experiencing wound healing before use of the device. Furthermore, the estimated regression coefficient was negative and highly significant. These findings suggest that intermittent pneumatic sequential compression significantly expedites healing of venous ulcers.

Intermittent Pneumatic Compression Improves Venous Ulcer Healing
By, Joseph M. McCulloch, Kevin C. Marler, Marvin B. Neal, and Travis J. Phifer

Abstract:
The effect of intermittent pneumatic compression on the healing rates of ulcers in patients with chronic venous insufficiency were randomly assigned to the experimental or the control group. Both groups received local wound care followed by application of an Unna boot. In addition, subjects in the experimental group received intermittent pneumatic compression (IPC) twice weekly for one hour each session: Healing rates were reported in square centimeters per day. Data analysis revealed a mean healing rate of 0.08 cm2 per day for control subjects and 0.15 cm2 per day for experimental subjects. Statistical analysis, demonstrated the healing rates of the two groups to be statistically different. The results appear to indicate that intermittent pneumatic compression is beneficial in the management of venous insufficiency ulcers.

Conclusion:
The results indicate that patients who receive IPC healed at a faster rate than patients not treated with IPC. Additionally, a greater percentage of patients receiving IPC healed their ulcers completely during the course of this study. These findings are consistent with those of the other investigators who used sequential IPC (Coleridge-Smith etal., 1990)
Compression Pump Studies – Venous Insufficiency

Compression Therapy
By, Michelle Choucair, MD and Tania J. Phillips, MD

Background:
Compression therapy is the standard care for venous insufficiency ulcers. It reverses some of the underlying pathologies and restores a functional calf pump unit.

Objective:
To review the pathophysiology of venous ulcers and the different types of compression devices available.

Results:
The choice of a compression device should be individualized and tailored to the need of the patient. It should be applied by skilled nurses or physicians.

Conclusion:

Use of the Intermittent Pneumatic Compression Device in Venous Ulcer Disease
By, Lt. Col. Doris J. Allsup, USAF, Nurse Corps, RN, MS, MPA

Abstract:
The intermittent pneumatic compression device is a relatively new treatment for patients with venous ulcers. With the advent of this therapy being used by the patient in the home setting, the nurse is the primary point of contact for patient questions, concerns, and patient education. Nurses need to know the optimal compression pressure, inflation time, and sequencing time cycles to advise patients in the proper use of this therapy and how to screen patients for its safe use. The major contraindication for this therapy is the presence of deep venous thrombi. A review of the literature is presented, concluding with a recommended scientific basis for optimal compression pressure, inflation time, and sequencing time cycle pattern for the intermittent pneumatic sequential compression device in the venous ulcer patient population. Patient education strategies and topics are discussed. (J. VASC NURS 1994; 12: 106-11.)

Conclusion:
Although the role of intermittent pneumatic sequential compression device therapy in venous ulcer treatment is relatively new, its effectiveness has been demonstrated. Several studies reviewed in this article do indicate faster healing in treating patients with leg ulcer with compression device therapy. Nurses are the main source of information for patients and, as such, must remain current in their research-based knowledge of new therapies. Patient education is a major component in the venous ulcer disease therapy plan and must be addressed at every patient encounter to achieve lasting lifestyle changes.