Edema Reduction with a Novel Total Contact Cast System Containing a Mild Compression Sock.

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Treat the V.I.P.’s in plantar foot ulcers and improve DFU wound outcomes.

Vascular Management with low-level compression sock

Infection Management and Prevention with the included gentian violet and methylene blue antibacterial foam* and an ovine collagen dressing with an intact ECM**

Pressure Relief with TTC system comprised of a clamshell cast with off-loading footplate***

Introduction:
In a November 2014 Off-Loading Consensus Guidelines, it is suggested that vascular management (V) infection management and prevention (I) and pressure relief (P) are essential to diabetic foot ulcer (DFU) healing. Evidence suggests that if V.I.P.’s are aggressively managed, then the wound-healing trajectory will progress. Lower extremity (LE) edema is a common clinical finding in patients with diabetes; however, there is a lack of awareness of how to treat edema without negatively impacting vascularity in the DFU patient. Elevation of the extremity has generally been recommended to reduce edema and prevent other sequelae problems such as venous congestion, reduced oxygenation, possible limb pain, slow healing or non-healing wounds and possibly amputation. However, this is not an effective answer to treating edema in a functional patient. LE edema is most often treated with a method of graduated compression therapy to reduce swelling such as a wrap system or compression sock. These methods can enhance fibrolysis and venous outflow.

An international consensus group has recommended a system for compression bandage systems and recommend categorizing mild compression as ≤20 mmHg. A pilot study concluded mild compression therapy (16-25 mmHg) decreased swelling in DFU patients with lower leg edema without compromising vascularity. A decrease in calf circumference, foot circumference, and cutaneous water content without compromise in arterial flow, has been demonstrated in diabetics after wearing mild compression socks.

Objective:
The objective of this observational case series was to quantify reduction in calf, ankle and mid foot circumferences with the use of a total contact cast (TCC) system comprised clamshell cast with an off-loading footplate which includes a mild compression sock worn to the knee for DFU patients. All 8 patients were receiving TCC system comprised of a clamshell cast with an off-loading footplate for diabetic ulcer management.

Methods:
This case series of 8 diabetic patients that required off-loading for a plantar ulcer with a TCC system comprised of a clamshell cast with an off-loading footplate. The casts were applied according to manufacturer’s instruction for use. Calf, ankle and mid-foot measurements were routinely recorded prior to initial application and weekly prior to each cast application.

Conclusions:
Mild compression decreased swelling in diabetic patients with LE edema without complications. As suggested by the V.I.P. concept, use of this TCC system comprised of a clamshell cast with an off-loading footplate reduced the circumference of the calf, ankle, and mid-foot during the management of these DFU patients.

Summary:
In today’s high pressure environment to obtain quality wound management for diabetic foot ulcers, wound care professionals must take advantage of all beneficial treatments. Adding a mild compression sock to a TCC improves edema reduction. This is another opportunity for clinicians to begin to improve wound healing outcomes.