

A Protocol For Pneumatic Compression Home Use

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Introduction

Pneumatic compression therapy has been validated as a useful modality for adjunctive lymphedema therapy, especially for self-treatment at home. However, there is much debate regarding specific home pneumatic compression treatment parameters such as pressure settings, treatment time and frequency, and other adjunctive treatments. The purpose of this study was to establish a clear protocol for pneumatic compression therapy in the home.

Methods

A literature review was conducted to evaluate clinical evidence for treatment parameters, indications, contraindications and techniques. Expert physician and therapist opinion, as well as manufacturer guidelines were obtained through interview and published literature. A wide variety of settings have been used in treatment, as well as formal studies, recent consensus documents and literature reviews



Results

While it is possible to roughly categorize presentations to different levels of compression, the most effective practice is a trial and titration of pressure and treatment time within prescribed ranges, according to observed measureable results and patient tolerance.

An initial assessment process is described to determine appropriate pressure ranges according to individual patient characteristics. The in-clinic trial affords an opportunity for the therapist to both educate and assess the patient. Pneumatic compression complements adjunctive therapies for home care: compression garments, education, exercise, skin care, and self-MLD

Clinical Protocol

- Evaluate patient, including medical history, surgeries, co-morbidities. Assess pain and sensation, functional mobility, edema and skin condition including fibrosis, scars and wounds.
- Establish conservative treatment program of elevation, exercise, and MLD. Determine need and type of appropriate static compression garments.
- Rule out contraindications for treatment: known or suspected DVT or pulmonary embolism, decompensated cardiac/uncompensated CHF, acute infection, inflammatory phlebitis or other ischemic vascular disease, or any circumstance where increased lymphatic/venous return is undesirable.
- Perform baseline edema measurements.
- Perform wound care as needed.
- Select pneumatic compression equipment based on pt. assessment, including appropriate appliance. If edema is present in the abdomen, genitals or torso, the appliance should cover that area as well.
- Isolate patient's skin from the appliance using stockinette or clothing (do not use over bare skin.)
- Perform pneumatic compression trial with patient, beginning with lower pressure and titrating upward while monitoring patient response and comfort.
- Assess edema reduction and tissue extensibility changes. Inspect skin for any adverse reactions such as irritation or skin breakdown.
- Prepare a home therapy program based on trial results, specifying frequency, duration, and amount of compression.
- Reassess the patient's home program periodically. As the patient reduces, especially if they experience concurrent overall body mass reduction, additional titration of compression may be indicated.



Pressure Criteria

Post-Mastectomy Lymphedema

- Low to Moderate compression: 30-50 mmHg
- Low to normal body mass
 - Stage 1 or stage 2 lymphedema
 - Presence of wounds, insensate or fragile tissue
- Moderate to High compression 40-60 mmHg
- Stage 2 or stage 3 lymphedema
 - Heavy fibrosis and/or high body mass

Lower Extremity Lymphedema

- Low to Moderate compression: 30-60 mmHg
- Low to normal body mass
 - Stage 1 or stage 2 lymphedema
 - Presence of wounds, insensate or fragile tissue
- Moderate to High compression >60 mmHg
- Stage 2 or stage 3 lymphedema
 - Heavy fibrosis and/or high body mass

Venous Stasis/Ulcers

- Low compression: <40 mmHg
- Presence of wounds, insensate or fragile tissue
- Moderate compression 40-60 mmHg
- Stage 1 or stage 2 lymphedema
- Moderate to High compression >60 mmHg
- Extreme fibrotic changes and/or high body mass



Special Considerations

- Compression over abdomen/torso <40 mmHg
- Typical treatment time is one hour, however, shorter, more frequent sessions may be helpful for patients who can comply
- Afternoon or evening sessions will provide the most response for lower extremity patients

Conclusions

Pneumatic compression therapy parameters of treatment including compression levels, cycle mode, time and frequency should be individualized according to unique patient characteristics. An in-clinic titration session provides an opportunity to develop a complete home treatment program to maintain and continue the improvements obtained in clinic.

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Further information

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