

PROGRAM PROTOCOL

for

SEQUENTIAL CIRCULATORS

Gradient, Sequential, Pneumatic Compression Devices

I. Purpose

To establish a standardized procedure for evaluation and treatment using the Bio Compression Systems' Sequential Circulator for patients with lymphedema.

II Evaluation

1. **Individual has lymphedema of an extremity** which has been unsuccessfully managed with other methods of treatment.
2. **Individual does not have a medical condition that would be a contraindication** for the use of a sequential compression device with calibrated gradient pressure, such as:

- A. Infections of the limb without appropriate antibiotic coverage
- B. Presence of Lymphangiosarcoma
- C. Congestive Heart Failure, unresolved
- D. Deep Vein Thrombosis, unresolved or with filter
- E. Inflammatory Phlebitis or during episodes of pulmonary embolism

3. **Individual has a family member** or significant other to assist in treatment if needed.
4. **Individual has a primary care physician** who will assume responsibility for writing order for pump pressures, frequency and duration of treatment.

III. Patient Education

1. During evaluation, the patient and family member will be educated in the appropriate use of the Bio Compression Sequential Circulator, including:
 - A. Operation of the Sequential Circulator
 - B. Specifics regarding the patient's course of treatment
 - C. Specifics as to proper skin care
 - D. Wear and maintenance of appropriate compression garment
 - E. Exercise appropriate to treating a specific area of body (arm/leg)
 - F. Recognizing adverse signs and symptoms of infection or Congestive Heart Failure
 - G. Demonstrated knowledge of appropriate prevention measures
 - H. Importance of follow-up in order to evaluate the effectiveness of therapy
 - I. Importance of pre/post-treatment measurements

IV. Treatment Procedures

****Physician's written order is required for pressure, time and frequency of treatment.****

1. Place patient in a comfortable position on recliner, sofa, bed, etc. Explain procedure to patient.
2. **Assess skin for any signs or symptoms of infection or cellulitis. If any signs are noticed do not put patient on the pump unless the patient has been on antibiotics for over 72 hours and the physician is aware. If the patient has an infection and has not been on antibiotics contact the prescribing physician.**
3. Measure swollen limb at appropriate anatomical landmarks. (Use same tape measure each time). Mark each location on skin to ensure same measurement. Ideally, the same person should measure the patient each time. A family member can be taught to measure the patient at home. Measurements should be recorded on a chart.
4. **Cover limb with cotton stockinette. Remind patient to remove any jewelry and keep hand flat if using an arm garment.**
5. Help patient apply garment to affected arm or leg. Use zipper to secure garment.
6. **Connect appliance to pump via the tubing connector.**
7. Turn pump on. Set pressure as first garment chamber is inflating. The pump may have to run through a couple of cycles before it reaches full pressurization in all chambers of the garment.
8. **Make sure patient is comfortable, using a blanket for warmth, proper lighting, etc.**
9. Set up time schedule if necessary to help patient keep track of treatment times. Treatment schedule may be 1-2 hours or longer, depending on physician's order.
10. **Instruct the patient to stop treatment immediately should symptoms such as numbness, loss of sensation, pain, coldness, pins and needles, cramping, difficulty breathing, heaviness in the chest, or dizziness occur. Investigate cause, ie signs of a Deep Vein Thrombosis (stop pump), signs of Congestive Heart Failure (stop pump), or pressure set too high, etc.**
11. At end of session, turn pump off. Remove appliances and measure limb at the same location as previously indicated with markings on skin. Record measurements on chart. Check skin for rashes, blisters or bruises and make note of same.
12. **Inquire of patient whether any problems were encountered. If so, deal with them immediately**
13. If leaving pump in patient's home, have patient demonstrate the proper use of pump and appliances while present.
14. **Fill out home instructions and leave copy with patient. Send copy of measurements and home instructions to patient's physician.**
15. After pump cycle is concluded, patient should be fitted with a proper compression garment to help control edema of limb.
16. **Discuss maintenance pumping schedule with patient and family.**
17. Report all treatment plans and follow-ups to patient's physician.

V. Pressure Settings - The physician is required to prescribe these settings, but general guidelines are listed below:

60mmHG is the general rule of thumb for most patients. However, other circumstances may require adjustments to the compression used.

Presence of fibrotic tissue may require as much as 80mmHG in order to break up the fibrotic tissue and achieve reduction. Once the tissue is soft, the compression can be readjusted to 60mmHG.

Patients with a history of Congestive Heart Failure, which is controlled with medication should never be in a flat position while pumping. They should be in a reclined position with elevated legs during treatment. Their treatment regimen duration may be divided into twice a day 30 minutes per treatment.

Patients with a history of Deep Vein Thrombosis may require less compression. These patients will generally tolerate 40mmHG. It is suggested that the provider obtain a Negative Doppler study from the physician for their records.

All compression settings should be discussed with the physician. It is ultimately his/her responsibility to prescribe the setting and it should be written on the prescription upon referral.

Every patient is unique and communication with the physician is important when setting pressures.