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Medical Policy Manual

Topic: Multi-Chamber Programmable Pneumatic Compression Pumps

Date of Origin: 11/24/09

Section: DME

Last Reviewed Date: June 2014

Policy No: 78

Effective Date: September 1, 2014

IMPORTANT REMINDER

Medical Policies are developed to provide guidance for members and providers regarding coverage in accordance with contract terms. Benefit determinations are based in all cases on the applicable contract language. To the extent there may be any conflict between the Medical Policy and contract language, the contract language takes precedence.

PLEASE NOTE: Contracts exclude from coverage, among other things, services or procedures that are considered investigational or cosmetic. Providers may bill members for services or procedures that are considered investigational or cosmetic. Providers are encouraged to inform members before rendering such services that the members are likely to be financially responsible for the cost of these services.

DESCRIPTION

Multi-chamber programmable pneumatic compression pumps may be used to lessen the accumulation of fluids in the arms, legs or trunk, to treat chronic venous insufficiency, or to prevent blood clot formation in immobile patients. Similar in action to the way a blood pressure cuff inflates and deflates, these devices provide air compression to segmented sleeves that are wrapped around the limbs or trunk. These multi-chambered sleeves can be individually adjusted to allow different pressures (gradient pressure) in each segment.

NOTE: This policy addresses only multi-chamber programmable pumps described by HCPCS code E0652. This policy does *not* address single- or multi-chamber non-programmable pumps, which are considered a standard of care for the treatment of lymphedema, prevention of venous thromboembolism in high risk patients, and chronic venous insufficiency.

MEDICAL POLICY CRITERIA

Multi-chamber programmable pneumatic compression pumps (HCPCS code E0652) are considered **not medically necessary** because these programmable pumps are more costly, but have not been shown to be superior to either single compartment or multi-chamber non-programmable pneumatic compression pumps.

SCIENTIFIC EVIDENCE

In evaluating the effects of the increased sophistication of multi-chamber programmable pneumatic compression pumps compared with non-programmable single- or multi-chamber pumps, the most informative evidence is from prospective randomized controlled trials comparing these various types of compression techniques.

Literature Appraisal

Systematic Reviews

A 2010 Agency for Healthcare Research and Quality (AHRQ) Technology Assessment on lymphedema pumps concluded that there "was no evidence from which to determine whether one type of [intermittent pneumatic compression] device or sleeve were more effective than others were across the continuum."[1]

Randomized Controlled Trials

There is no reliable evidence from well-designed, well-executed randomized controlled trials comparing the effectiveness of multi-chamber programmable pneumatic compression pumps with either single compartment or multi-chamber non-programmable pneumatic compression pumps.

Non-randomized Comparative Trials

Data on the effectiveness of pneumatic compression devices remains limited. The evidence consists primarily of small non-randomized trials for a variety of single and multi-chamber pumps.[2-4] Evidence from these studies does not permit conclusion about effectiveness and safety due to methodological limitations including but not limited to the following:

- Non-random allocation of treatment which may introduce selection or response bias.
- Lack of blinding may bias treatment effect estimates.
- Lack of appropriate comparison groups which does not permit conclusions on the efficacy of multi-chamber programmable pumps compared to other available pumps.
- Variable pump protocols limit effective analysis across studies because it is difficult to determine whether a treatment effect is related to the pump type or protocol used.
- Small study populations which limit the ability to rule out the role of chance as an explanation of findings.
- Variable patient baseline characteristics such as severity of conditions (e.g. lymphedema) which may bias treatment effect estimates.

Adverse Events

Concerns about damage to remaining intact lymphatics caused by too high pump pressures have been reported; however, these concerns are not well quantified in the literature.

Clinical Practice Guidelines

No clinical practice guidelines from U.S. professional societies were found that recommend any specific type of pneumatic pump.

Summary

Although generally more costly, multi-chamber programmable pneumatic compression pumps have not been shown to be superior to single compartment or multi-chamber non-programmable pneumatic compression pumps for the treatment of any condition. Therefore, multi-chamber programmable pneumatic compression pumps are considered not medically necessary.

REFERENCES

1. Agency for Healthcare Research and Quality. (AHRQ)Technology Assessment, Diagnosis and Treatment of Secondary Lymphedema. 2010. [cited 06/19/2014]; Available from: http://www.cms.gov/determinationprocess/downloads/id66aTA.pdf
2. Mayrovitz, HN. Interface pressures produced by two different types of lymphedema therapy devices. *Phys Ther*. 2007 Oct;87(10):1379-88. PMID: 17712034
3. Ridner, SH, McMahon, E, Dietrich, MS, Hoy, S. Home-based lymphedema treatment in patients with cancer-related lymphedema or noncancer-related lymphedema. *Oncol Nurs Forum*. 2008 Jul;35(4):671-80. PMID: 18591171
4. Wilburn, O, Wilburn, P, Rockson, SG. A pilot, prospective evaluation of a novel alternative for maintenance therapy of breast cancer-associated lymphedema [ISRCTN76522412]. *BMC Cancer*. 2006;6:84. PMID: 16571129
5. BlueCross BlueShield Association Medical Policy Reference Manual "Pneumatic Compression Pumps for Treatment of Lymphedema." Policy No. 1.01.18

CROSS REFERENCES

None

CODES	NUMBER	DESCRIPTION
CPT	None	
HCPCS	E0652	Pneumatic compressor, segmental home model with calibrated gradient pressure
	E0671	Segmental gradient pressure pneumatic appliance, full leg
	E0672	Segmental gradient pressure pneumatic appliance, full arm
	E0673	Segmental gradient pressure pneumatic appliance, half leg