

Anti-Embollic Stocking use

This discussion paper was prepared by the Adelaide Wound Management Clinical Network.
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The Adelaide Wound Management Clinical Network (AWMCN) is comprised of eminent nurse clinicians from major Adelaide hospitals and organisations. Whilst the members of this group are not 'expert' clinicians in phlebology, many are involved directly or indirectly in selection, education and use of anti-embolic stockings (AES). As there is considerable variation in practice and confusion regarding the use of anti-embolic stockings the members of the group believe a discussion paper to help inform best practice is warranted.

Background

This discussion paper is endorsed by the Adelaide Wound Management Clinical Network (AWMCN) and is based on available evidence. This discussion paper aims to promote best practice in prevention of Deep Vein Thrombosis (DVT) and should be considered by organisations to inform and guide policies, procurement and practice.

Discussion / recommendations

- The Best Practice Guidelines for Prevention of Venous Thromboembolism, 2005 Edition 3 is available from HEMI. These Guidelines were developed by eminent clinicians including vascular surgeons and phlebologists from Australia and New Zealand. These guidelines are valuable in informing best practice in the area of DVT prevention and AES use.
(HEMI is Health Education & Management Innovations. Contact email address is: HemiAustralia@aol.com)
- There is some evidence that certain AES do not provide adequate compression or may even result in reverse pressure gradients. Ensuring correct and therapeutic compression will assist in maximising DVT prevention. Use of contemporary literature in addition of company data will assist the clinician to choose AES with proven efficacy.
- The Best Practice Guidelines state that there are two non-interchangeable types of stockings:
 1. Anti-embolic stockings: for prevention of DVT, and
 2. Graduated compression stockings: for management of chronic venous insufficiency.However, the term graduated compression stockings is used to describe numerous garments with varying levels of compression and indications. The literature refers to the two terms interchangeably, resulting in confusion for clinicians at all levels. To promote maximum efficacy clinicians use correct compression level and type of stocking for the indication.
- There is some evidence (one study by MacLellan 2002) that AES do not maintain adequate compression when limbs are in the dependent position. However, this requires further investigation. Companies manufacturing and/or marketing AES state that they are primarily designed to be worn, and give adequate, sustained compression when patients are supine.
- The duration of wear for AES in rehabilitation is unclear. There is considerable evidence to support the use of AES for DVT prevention in the immobile, supine patient. However, the role and efficacy of AES in the sitting or ambulant patient is not clear. There may be some benefit in wearing AES during rehabilitation until full ambulation is attained, however further research to substantiate this is needed.
- AES stockings are primarily designed for DVT prevention. There is a lack of evidence to support the role of AES for effective management of oedema. The role of AES in management of mild oedema is unclear. In the studies that tested compression of AES all but one tested stockings in the supine position. One study (MacLellan 2002) tested AES in the dependent position and concluded that they provide inadequate pressure in this position. Further studies to replicate this work are needed and currently there is no definitive position on this issue. However, AES are currently marketed for prevention of DVT, not for oedema prevention or management.

- Inappropriately sized stockings can result in inadequate compression, tissue damage and pain. Accurately measuring limbs will ensure stockings are correctly fitted and provide adequate compression.
- For optimal DVT prevention AES are worn continuously. As AES can lead to tissue damage, regular removal of stockings for skin inspection, hygiene and laundering may prevent problems or detect them early to allow appropriate management.
- There is currently no consensus on whether thigh high AES offer advantage over knee high. If thigh high or full leg AES are used, the stockings might roll down. This can potentially cause tissue damage and create a tourniquet effect.
- Education sheets to instruct patients on laundering, wear times, duration of treatment, replacement and purchasing (if required) can assist patients understand how, why and when to wear their AES. This may result in increased compliance with wearing AES.
- Provision of staff information and/or training and education may assist staff involved with prescription and fitting of AES to understand the garments. Companies supplying AES are often willing to conduct staff education and training.

Limitations

In reviewing literature available to the network it was identified that significant gaps remain in the evidence. These gaps include consensus on:

- The efficacy of knee high versus thigh or waist high stockings
- The role of AES in rehabilitation.
- The role of AES in the ambulant person or person with dependent legs.
- The role of AES in oedema management.

Disclaimer

This discussion paper is based on the network member knowledge of anti-embolic stockings and graduated compression therapy. This discussion paper is presented with consideration to relevant clinical practice guidelines and literature. No responsibility is taken by the Adelaide Wound Management Clinical Network for any harm to person or property arising from the information provided. No responsibility is accepted by the Adelaide Wound Management Clinical Network for the consequence of inaccuracy or omission of information. Provision of this information does not constitute endorsement of any product.

Bibliography / Resources

Anonymous, 1995, Graduated Compression Stockings to Prevent Postoperative Venous Thromboembolism, www.jr2.ox.ac.uk.bandolier/band16/b16-4.htm

Bright, L.D. & Georgi, S. 1994, 'How to protect your patient from DVT', AJN December, pp. 28-32.

Collier, M. 1999, Brevet tx: anti-embolism stockings for the prevention and treatment of DVT', British Journal of Nursing, Vol. 8, No. 1, pp. 44-49.

Feied, C. & Handler, J.A. 2004, Pulmonary embolism, www.emedicine.com/emerg/topic490.htm

Fletcher, J (Chair), 2005, Prevention of Venous Thromboembolism: Best Practice Guidelines for Australia and New Zealand, Health Education & Management Innovations, www.HemiAustralia.aol.com

Joanna Briggs Institute for Evidence Based Nursing and Midwifery, 2001, 'Graduated compression stockings for the prevention of post-operative venous thromboembolism', Best Practice, Vol. 5, Issue 2, pp. 1-6, www.joannabriggs.edu.au

MacLellan, D.G. 2001, 'Venous thromboembolism: an insidious hazard part III: role of graduated compression', Primary Intention, Vol. 9, No. 4, pp. 169-174.

MacLellan, D.G. 2002, 'Compression profiles of antiembolic stockings', Australian and New Zealand Journal of Phlebology, Vol. 6, No. 1, pp. 9-14.

Maylor, M.E. 2001, 'Accurate selection of compression hosiery and antiembolic hosiery', British Journal of Nursing, Vol. 10, No. 18, pp. 1172-1184

Whitley, L. 2005, 'Graduated compression hosiery', www.pharmpress.com/shop/samples/pcicp.pdf