ANTI-EMBOLISM STOCKINGS

DOES YOUR FACILITY MEASURE UP?:
Improving Patient Outcomes Through Proper Sizing and Application of Graduated Compression Stockings

Abstract
The benefit of graduated compression stockings (GCS), alone or in combination with pharmacological therapy and pneumatic compression devices, in reducing the occurrence of Deep Vein Thrombosis (DVT) has been demonstrated in numerous studies over the past three decades.

This paper explores the correlation of proper application and use toward achieving the goal of effective patient outcomes.

Introduction
Patients at risk for DVT include patients who have had surgery, particularly joint replacement surgery, spinal cord injury, trauma, or are confined to bed. Study results show a significant reduction in the risk of deep vein thrombosis in surgical patients who properly use GCS.

Deep Vein Thrombosis and Pulmonary Embolism (PE), associated with total knee replacement and hip replacement, are among the hospital-acquired conditions with payment implications imposed by Centers For Medicare and Medicaid Services beginning in Fiscal Year 2009 (October 1, 2008).

GCS, when fitted and applied correctly, increase the velocity of blood flow, reduce the risk of dilation of the venous wall and potential for intimal tear, improve venous valve function, and may reduce coagulability all of which lead to a reduced risk of venous thrombosis.

The Role of Education
It is important to understand that GCS compression ratings are standardized and regulated throughout the industry but sizes are not.

In the hospitalized patient, it is the responsibility of the clinician to properly size and apply GCS, as well as, ensure the patient understands their purpose and correct use.

Facilities change brands for a variety of reasons which often include, improving patient care or meeting the needs of staff and budgets. It thus becomes imperative that ongoing education is provided to the clinician on the appropriate usage and sizing of these stockings.

Stockings not fitted or used correctly have the potential to not only negate the efficacy of the therapy, but can actually increase the risk of DVT. In addition, incorrect fit and usage can cause skin breakdown.

Industry-Wide Implications
A recent study by Elizabeth H. Winslow, PhD, RN, FAAN and Debra L. Brosz, MSN, RN, ONC, NEA-BC, was published in American Journal of Nursing. The study evaluated the correctness of usage and size of both knee and thigh length GCS, as well as, comfort in hospitalized postoperative patients. Additional parameters evaluated were the effect of weight, sex and the patient’s understanding of the purpose of the therapy.

Study results found that issues with incorrect usage were found more frequently in patients with thigh length stockings than in patients with knee length stockings.

In most instances, patients wearing stockings that were incorrectly sized had been given a larger size than needed. Skin problems, i.e. redness in the stocking area were identified more often in patients wearing thigh length stockings.

Relative to comfort of the stockings, 41% of patients rated the thigh length stockings as uncomfortable or very uncomfortable as compared to 6% of patients wearing knee length stockings.

Overall, there were significantly more problems with incorrect size, usage, skin redness and discomfort associated with use of the thigh length stockings than with the knee length stockings. For the overweight patient, the problems were more common.

In one of the studies reviewed by Winslow et al, Williams and colleagues evaluated the use of GCS in eight hospitals in the United Kingdom by making unannounced visits to Orthopedic units. They evaluated 79 patients with thigh length stockings and 52 with knee length stockings.
Industry Issues (continued)

They concluded knee length stockings were easier for patients to put on, less expensive and more tolerable than thigh length stockings.

They recommended replacing use of thigh length with knee length stockings. They found the widespread failure to use stockings properly suggest a complacency in practice which might cause complications and prevent an adequate response to the therapy. They therefore concluded "it is essential for those using GCS to understand the importance of correct application and sizing of stockings, and the risk of poor fitting."

Proper Protocol

Based on information contained in the Evidence-Based Practice Information Sheet (Joanna Briggs Institute), in order to ensure the maximum benefit of GCS and successful prevention of deep vein thrombosis, it is essential the following recommendations are adhered to:

1. Measure and fit stockings per specific manufacturer’s recommended guidelines and sizing chart.
2. Document leg measurements and stocking size at initial placement to serve as a baseline reference.
3. Remove the stockings every 12 hours to assess the skin and perform skin care.
4. Review leg measurements regularly to avoid any potential complications from leg swelling that causes excessive pressure from the stockings.
5. Check stockings regularly to ensure correct usage and verify there is no restriction of blood flow.
6. Check neurovascular status regularly using the inspection window in the toe area of the stockings.
7. Monitor patients when they are sitting up to ensure stockings are not acting as a tourniquet.
8. Educate the patient on the purpose, correct application and fit of the stockings. Additionally, education must be provided on proper skin care.
9. Educate the healthcare worker on the above to ensure proper usage of GCS.

As previously stated in this paper, evidence supports the use of GCS in the management of venous thromboembolism. Clinical Practice Guidelines from the American College of Physicians and American Academy of Family Physicians include the recommendation that “compression stockings should be used routinely to prevent post-thrombotic syndrome, beginning within one month of diagnosis and continuing for a minimum of one year after diagnosis”.

Conclusion

As has been demonstrated in this paper, education of the clinician is a critical component in the correct use of GCS. The use of clear, easy to understand sizing charts are essential to help ensure the correct product choice is made in product type and size. The Encompass/Albahealth Anti-Embolism Stockings Quick Reference Sizing Chart is color coded in length and in circumference measurements. Additionally, the stockings have a toe port which facilitates inspection of the toes as stated above in recommendation 6 and are constructed to provide maximum comfort for the patient.

Lastly, the importance of patient compliance cannot be overemphasized. It along with a comprehensive clinical education program are the essential components in the goal of achieving an effective patient outcome in the management and prevention of deep vein thrombosis.


Snow, Vincenza, MD et al “Management of Venous Thromboembolism: A Clinical Practice Guideline from the American College of Physicians and the American Academy of Family Physicians”, Annals of Internal Medicine, February 6, 2007, VOL 146, Number 3

Wound, Ostomy and Continence Nurses Society (WOCN), White Paper: "Increase Patient Access to Necessary Supplies"

http://www.cms.hhs.gov/HospitalAcqCond/06_Hospital-Acquired_Conditions.asp

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