Compression Therapy NHS Scotland – Is there consensus?

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Introduction

SPARG (Scottish Physiotherapy Amputee Research Group) is a group of physiotherapists working across Scotland who are involved with amputee rehabilitation. Pan Scotland there are multiple different models of practice (in-patient, out-patient and part in-patient: out-patient). It transpired over a number of SPARG meetings there were some similarities in the compression stocking protocols and provision; however there were also differences.

SPARG agreed that a review of compression stocking protocols and provision would help provide greater clarity, and this would facilitate more equitable care across NHS Scotland.

Figure 1. Map of geographical location of SPARG respondents
*Glasgow's SPARG members come from 3 different hospital sites

Current Guidelines:

The BACPAR guidelines *"The Management of post-operative residual limb management oedema"* can be divided into 4 areas: rigid dressings, PPAM Aid, Compression and Wheelchair stump boards (BACPAR, 2012).

Compression:
"*Although compression socks are widely used (3) as a form of oedema control there is very limited evidence on aspects such as timing of application, who should assess*

appropriateness and the frequency it should be worn for. It is suggested that further research is required in order to offer more clarity for clinicians in these areas" (BACPAR, 2012).

BACPAR guidance for MDT on the management of postoperative residuum oedema in Lower Limb – Compression Socks

- A conical, graduated, sock like compression garment for residual limbs
- Grade of recommendation D

Types available

Manufactured by Juzo and Otto Bock. Available for trans-tibial and trans-femoral amputations in a variety of lengths and circumferences.

Application

When – Within 10 days post-operative (3).

Who – No evidence is documented in the literature to suggest who should measure and fit a compression sock.

Duration – A regime for wearing a compression sock is not documented in current literature or manufacturer's instructions.

Further Considerations

· Compression socks should be used in preference to elastic bandage wrapping (2)

· Trans-femoral and trans-tibial socks available (24)

· Compression sock size selection as per manufactures' guideline (24)

· Bespoke compression socks can be ordered from the manufacturers

· Frequent donning and doffing of socks in the early post op stages can create excessive distraction pressure over the distal end therefore the GDG suggest the use of a bandage applicator for ease of application and to reduce this effect

· Manufacturers' guidance does not say when compression socks can be initially applied

Benefits

· Reduction in oedema (1,2,10)

· Reduced time to prosthetic casting (3)

· Easy donning and doffing (10)

· Helps to shape into cylindrical shape for casting (10)

Table 1. BACPAR guidance for MDT on the management of postoperative residuum Oedema in Lower Limb - Compression Socks

Method

It was discussed and agreed that SPARG members would submit any compression sock protocols they used at their hospital site and complete a short online questionnaire. Seven of the eleven hospital sites responded to the questions in Table 2.

Initial Questionnaire Compression Stocking Protocol
1. How many days from amputation to compression stocking application?
2. What size of compression stocking would you apply?
3. When would re-measurement occur?
4. What method of application would you prefer e.g. cage, 2 people,1 person?
5. Do you provide an information sheet? Yes or No
6. What do you believe to be contraindications to application of compression

stocking? 7. Any miscellaneous comments?

Table 2. Initial Questionnaire

The initial feedback at a SPARG meeting generated extensive debate. Further robust discussion resulted in an agreement that a second extended questionnaire would be sent out to all members that would address the additional topics that had arisen, including:

- *Would a compression sock be applied over PICO/VAC dressings?*
- *How long would a patient be recommended to wear the compression sock for?*
- *Would overnight use be encouraged?*

Final Questionnaire Compression Stocking Protocol
1. How many days from amputation to compression stocking application? 2. What size of compression stocking would you apply? 3. When would re-measurement occur? 4. What method of application would you prefer e.g. cage/2 people/1 person? 5. Do you provide an information sheet? Yes or No 6. What do you believe to be contraindications to application of compression stocking? 7. Do you promote wearing compression stocking overnight? 8. Do you apply a compression stocking over PICO dressings/VAC dressings? 9. How long would a patient be recommended to wear the sock for– graded duration or patient comfort/pain? 10. Dependent on clinical presentation both physically and cognitively, would you consider applying a compression sock over a residual limb that was measuring above the maximum circumference noted by the manufacturer? 11. Any miscellaneous comments?

Table 3. Final Questionnaire

There was an increase in the response rate to the second questionnaire with SPARG members from all 11 hospital sites replying.

Results

In some cases, there were multiple responses to the individual questions.

Question	Consensus from survey 1	Consensus from survey 2
1. Days from amputation to compression stocking application?	Full consensus 100% (n=7) to aim for application by day 10 post op - as soon as possible post theatre dressings/rigid dressings/wound allows (some variation with this re aetiology / level of amputation)	Full consensus 100% (n=11) to aim for application by day 10 post op - (some variation with this re aetiology / level of amputation)
SPARG members comments: ✓ *The consensus is to apply as soon as is possible post-op. The patient's residual limb condition including pain and wound status are factors that are considered*		

✓ *Where possible, compression stocking application by Day 10 post amputation is aimed for, or immediately after removal of rigid dressing* ✓ *There is some differentiation dependent on whether TTA or TFA level and also aetiology of amputation (vascular or non-vascular)*		
2. What size of compression stocking would you apply?	Full consensus 100% (7) that initial provision is for as-measured or one size up - dependent on wound condition / pain tolerance of patient	Full consensus 100% (11) that initial provision is for as-measured or one size up - dependent on wound condition / pain tolerance of patient
SPARG members comments: ✓ *The compression sock issued is either as measured or one size greater* ✓ *Consideration is given to sizing if the patient is complaining of pain or tenderness, whether clips have been used, beading is in place or patient is anxious* ✓ *Reluctance to provide the longer 18"/38cm length sock (n=1)*		
3. When would re-measurement occur?	Partial consensus (n=5) ▪ 40% (n=2) "regularly" ▪ 40% (n=2) 2 or more times per week ▪ 20% (n=1) weekly	Full consensus 100% (n=11) by all centres to re-measure/replace as clinically indicated
SPARG members comments: ✓ *All physiotherapists re-measure regularly (i.e. daily, every couple of days, weekly, when loose)* ✓ *Frequency of re-measurement is affected by patient appointment*		
4. What method of application would you prefer (e.g. cage/2 people/1 person)?	Partial consensus (n=4) ▪ 50% (2) 2 people (either 2 staff or 1 staff/1patient) ▪ 50% (2) use of cage	Partial consensus (n=6) ▪ 86% (6) 2 people (either 2 staff or 1 staff/1patient) ▪ 71% (5) use or consider use of cage
SPARG members comments: ✓ *Use of application cage or two persons (patient and physiotherapist) is common practice especially for the first time and if tender* ✓ *Independence in self-application is encouraged as soon as is possible* ✓ *Four* sites did not have a cage available		
5. Duration of wearing sock on initial provision	Not asked in first round	Full consensus (n=11) ▪ 86% (n=6) dependent on comfort/ "as pain allows" ▪ 28% (n=2) all day and night if tolerated ▪ 14% (n=1) gives specific daily timings
SPARG members comments: ✓ *Encourage patients to be guided by comfort, removing it if residual limb becomes uncomfortable or painful in any way* ✓ *Suggest increasing use gradually as comfort allows until wearing all day* ✓ *If a patient is fitted with a prosthetic limb, they are encouraged to continue wearing compression sock when not wearing limb*		

6. Do you promote wearing compression stocking overnight?	Partial consensus (n=3) ▪ 67% (n=2) encourage wearing compression sock overnight as comfort allows ▪ 33% (n=1) once wound healed	Partial consensus (n=8) ▪ 100% of respondents encourage wearing of compression sock overnight if comfortable
SPARG members comments: ✓ *25% encourage wearing older / larger sock if more comfortable* ✓ *12.5% after first week post-op and 12.5% once healed*		
7. Do you provide an information sheet? Yes or No	Partial consensus (n=4) ▪ 33% (n=2) provide written information ▪ 67% (n=4) no written information provided	Partial consensus (n=9) ▪ 55% (n=5) Information sheet provided ▪ 45% (n=4) no information sheet provided
8. What do you believe to be contraindications to application of compression stocking?	Partial consensus (n=4) ▪ 75% (n=3) pain (infection /ischaemia) ▪ 100% (n=4) leaky or deteriorating wound	Partial consensus (n=8) ▪ 100% (n=8) pain /infection /ischaemia ▪ 75% (n=6) wound concerns
SPARG members comments: ✓ *Whilst pain and concern about a deteriorating wound were the main contraindications to compression sock use there were other responses generated included larvae therapy, known or suspected DVT, significant cognitive impairment and oedema due to CCF*		

9. Do you apply a compression stocking over negative pressure dressings?	Not asked in first round	Full Consensus
		PICO Dressing:
		▪ 100% (11) consensus to apply compression sock over PICO dressings
		
		VAC Dressing:
		▪ More cautious over VAC dressings: overall 50:50 split
		  ▪ 45% (n=5) would not apply over
		  ▪ 27% (n=3) would apply over vac dressing
		  ▪ 18% (n=2) would apply (under guidance from vascular nurse)
		  ▪ 9% (n=1) don't use VAC dressings

10. Application out-with sizing guide **Question: Dependent on clinical presentation both physically and cognitively, would you consider applying a compression sock over a residual limb that was measuring above the maximum circumference noted by manufacturer?**	Not asked in first round	Partial consensus ▪ 82% Yes (n=9) ▪ 18% No (n=2)

SPARG members were asked for any miscellaneous thoughts, and this generated the following responses:

- *Liaise with consultants prior to use*
- *Always assess wound first and liaise with MDT*
- *Dependent on wound soakage*
- *Issue in morning, check tolerance in afternoon*
- *Issue 2 socks (but note that this practice is reducing due to financial costs)*
- *Patient's tolerance of wearing shrinker in conjunction with early walking aid is an indication of patients readiness for limb fitting referral*
- *Never apply longer 18" sock initially*
- *Encourage seam of sock to be perpendicular to the wound*

Summary

- Full consensus (100%) that days to initial application aim is by **day 10 post op**/ as soon as possible post theatre dressings/rigid dressings/wound allows. Aetiology and level of amputation factor in this decision.
- Full consensus (100%) that once measured the compression sock issued is either as measured or one size greater.
- Method of first application of compression sock
    - 86% use 2 people
    - 71% use/consider use of a cage
- Initial advice on the duration of the compression sock to be worn
    - 86% advise as long as comfort dependent/ pain allows.
    - 14% suggest structured times over several days
- 100% promote wearing compression sock overnight if comfortable
- Not all services provide written information about compression sock use
- Contraindications when compression sock not to be used:
    - 86% due to pain (ischaemic / infection / residual limb)
    - 56% wound concerns (deteriorating / excess exudates / open)
- 100% would apply over a PICO dressing
- 45% would apply over a VAC dressing

This piece of audit has demonstrated that SPARG have partial consensus around compression stocking protocols and provision. Advances in wound management and dressings have created some variations in practice as therapy staff gain knowledge and experience within their differing services. SPARG discussions identified key areas for future research in this field i.e. use of silicone topped socks; negative pressure dressings; patient information; tolerances of adhering to the exact measured size of residuum.

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References

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