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CRITERIA FOR NON-COMPLIANCE OF MEDICAL COMPRESSION STOCKINGS

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Criteria for non-compliance of MCS

- **Background**
  - Compliance of MCS estimated by doctors as poor < 70%
  - Few studies, mainly international
    - Not generalizable (different standardizations)
Criteria for non-compliance of MCS

- **Background**
  - In controlled studies
    - Compliance 90% in a month
    - 25 % with a follow up over 5 years
Criteria for non-compliance of MCS

- Susan Kahn
- Compression stockings to prevent post-thrombotic syndrome: a randomized placebo-controlled trial
- MCS did not prevent PTS after a proximal DVT
- Compliance after 2 years: 45% of patients did not regularly wear MCS
Criteria for non-compliance of MCS

Causes of non-compliance

Key publications
Criteria for non-compliance of MCS

- Moffatt CJ.
  - Reviewed data (10 studies) on the reasons why compression therapy (MCS and bandages) for the treatment of venous ulcers was unacceptable by patients
    - Inapplicability, wear-comfort factors,
    - inefficacy,
    - feeling of constriction
Criteria for non-compliance of MCS

- Raju CJ et al
  - 3144 patients for 8 years
  - CEAP C0-2 67%  C3 22%  C4 4%  C5 4%  C6 3%
  - Only 21% used the stockings on a daily basis
  - 16% less often
  - 63% did not use the stockings
# Criteria for non-compliance of MCS

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
<th>Specific Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could not state a specific reason</td>
<td>30%</td>
<td>Cosmetic, poor appearance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Not recommended by doctor</td>
<td>25%</td>
<td>Aggravating, itching, dermatitis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Ineffective, did not help</td>
<td>15%</td>
<td>Made symptoms worse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Binding, cuts off circulation, poor fit</td>
<td>13%</td>
<td>Lack of self-discipline</td>
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<tr>
<td></td>
<td></td>
<td>0.5%</td>
</tr>
<tr>
<td>Too hot</td>
<td>7%</td>
<td>Cost considerations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.4%</td>
</tr>
<tr>
<td>Soreness</td>
<td>2%</td>
<td>Work-related</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.2%</td>
</tr>
<tr>
<td>Needs application assistance</td>
<td>2%</td>
<td></td>
</tr>
</tbody>
</table>
Criteria for non-compliance of MCS

- Ziaja D et al.
  - 16770 patients with CVD used only by 25.6%
  - Use increased with higher clinical stages of CVD
  - 5.3% of patients discontinued the use of MCS
Criteria for non-compliance of MCS

- High cost
- Sweating, itching, exudation lesions
- Cosmetic reason,
- Edema exacerbation
- Application difficulty
Criteria for non-compliance of MCS

- Reich-Schupke et al
  - 200 patients with CVD with a compression therapy time > 2 weeks
  - 110 returned questionnaires
  - > 60 years and BMI > 25 the help of another person to apply compression
  - BMI > 25 feeling of constriction
Criteria for non-compliance of MCS

- Finlayson K et al
  - Psychosocial factors to influence compression therapy
  - 122 patients with a previous ulcer history
  - The impact of nervous depression
Criteria for non-compliance of MCS

- Allaert et al

  - Compliance of MCS in 2265 patients
  - 36.6% wore MCS every day
  - Poor compliance
    - Insufficient number of pairs of MCS in their disposition 24.5%
    - Difficulties putting them on 23.8%
    - Difficulties taking them off 14.5%
    - Insufficient feelings of improvement 9.1%
Criteria for non-compliance of MCS

- Allaert et al
  - The prescribed number of pairs plays a major role in the regularity of the port changes
  - It grows from 31.6% when insufficient to 78.0% when it is considered as sufficient.
Criteria for non-compliance of MCS

- Benigni et al
  - Comparison between graduated MCS and progressive MCS
    - Progressive MCS were easier to putting on / taking off than graduated MCS
Criteria for non-compliance of MCS

How to monitor compliance?
Criteria for non-compliance of MCS

- Wearing time of MCS by a patient cannot be controlled
  - It is related to what a patient says ...
Criteria for non-compliance of MCS

- The use a thermo button could help control the wearing of MCS
Criteria for non-compliance of MCS

- A spy that measures the skin temperature
  - Programming over a month with a measurement every 21 min
  - Thermotrack is waterproof
  - Record of temperature
    - From -40°C to 80°C
Criteria for non-compliance of MCS
Criteria for non-compliance of MCS

The Thermotrack can be putten into the setback of the stocking
Criteria for non-compliance of MCS

- Proposal of a pilot study before a broad use of Thermotrack
  - Main objective
    - To study the reliability of Thermotrack for 6 days
  - Secondary objective
    - To compare the data declared by the healthy subjects (diary) to the data recorded by Thermotrack
Criteria for non-compliance of MCS

- Proposal of a pilot study for a broad use of Thermotrack
  - Methodology
    - Non comparative study in 10 healthy subjects wearing MCS (18-21 mmHg) with Thermotrack for 6 days
    - With handwashes of MCS in warm water
Criteria for non-compliance of MCS

- Conclusions
  - Causes for non-compliance of MCS are multiple
    - Miscommunication between the patient and the prescriber and the pharmacist
    - Misuse of MCS
    - Application difficulties (age and weight)....
Criteria for non-compliance of MCS

- Causes for non-compliance of MCS are multiple
  - Cosmetic reasons
  - Non efficiency
  - Side effects
  - Discomfort
  - High cost...
  - Nervous breakdown
Criteria for non-compliance of MCS

- But if we don’t know whether MCS is really worn by the patient ..... 
- All results on clinical efficiency of MCS are questionable!
Criteria for non-compliance of MCS

References
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Compression stockings to prevent post-thrombotic syndrome: a randomised placebo-controlled trial.

2) Moffatt C., Kommala D, Dourdin N, Choe Y
Factors that affect concordance with compression therapy.

3) Raju S; et al.
Use of compression stockings in CVD: patient compliance and efficacy
Criteria for non-compliance of MCS

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3) Zaija D., Kocelak P, Chidek J, Ziaja K.
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   Phlebology 2011 Dec; 26(8): 353-60

4) Reich-Scruple S. et al
   Compression therapy in elderly and overweight patients
   Vasa 2012 Mar; 41(2): 125-31
Criteria for non-compliance of MCS

5) Finlayson K, et al
The impact of psychosocial factors on adherence to compression therapy to prevent recurrence of venous leg ulcers.

6) F. A. Allaert et al
Factors Influencing Compliance with Compression Stockings: An Observational Study in Community Pharmacies
Poster in AVF 2013

7) Benigni JP. Et al
Difficulty associated with donning medical compression stockings: results from a survey comparing two different compression stockings.
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