La compression Veineuse Elastique, Quelle évolution en 10 ans!

Elastic Venous Compression, these last ten years evolution.

Dr Laure Perrissin-Chevalier
Affaires Médicales INNOTHERA
Disclosure

INNOTHERA
1- From empiric use

Venous disease history

- 250 000 à 28 000 ans Before Christ Homo *erectus*

- 1550 B.C. Ebers Papyrus (Smith & Ebers)
  - 1st description of a varicose vein in Egypt
  - Ulcer and edema treatment description

- 400 BC Hippocrate

- 19ème R. Virchow
From bandages to current stockings -1-

Bandage

History of Venous Diseases of the legs ...H. Kohler 1986
La contention élastique dans l’insuffisance veineuse... JF. Telitsine, A. Bernadou 1996
Histoire de la phlébologie de J. Chevallier 1997
From bandages to current stockings -2-

An increasing use of compression in France:
in 2005: 4 millions pairs
in 2013: 10 millions pairs
Clinical Proofs – HAS -

- HAS 2010: Evaluation of compressive medical devices – Use in vascular pathology

- Indications on demonstrated clinical efficacy:
  - Venous ulcer treatment (C5 et C6)
  - Acute deep venous thrombosis treatment
  - Deep Venous Thrombosis prevention during flights of more than 7 hours
  - Post Thrombotic Syndrom prevention
  - Chronic venous disease Treatment

And recommendations:

- In a medical context
  - In case of situations at risk, in particular in case of bed rest:
    - Previous DVP
    - Cancer with thrombosis risk
    - Infections with long lasting fiever
    - Cardiac insufficiency
    Compression is not recommended after a stroke

- In a context of surgery.

- Pregnancy and post-partum.
  - Compression is recommended during pregnancy and six weeks after birth (6 months if caesarian section)

- Post-varicosis surgery & endovascular procedures:
  - experts consensus
Clinical Proofs – DVT Prevention -1-

Chir orthop
4 ECRs (PTH)

Chir orthop
8 ECRs

Chir générale
9 ECRs

Chir générale
11 ECRs

Hospitalisés (méd et chir)
8 ECRs (n=1279)

Chir orthop
6 ECRs

Chir générale
5 ECRs

Hospitalisés (méd et chir)
10 ECRs (n=1248)
Clinical Proofs – DVT prev. -2 -

Deep veins section size reduction
IRM in 8 normal subjects.

Anti thrombosis socks (16-20 mm Hg) reduce cross section area of deep veins (-64%) and superficial veins (-39%) in decubitus.
PTS Prevention -1-

194 patients: proximal DVT  RCT: compression 40 mm Hg at least 2 years vs no stocking

Randomised trial of effect of compression stockings in patients with symptomatic proximal-vein thrombosis
Lancet 1997; 349: 759–662
PTS Prevention -2-

180 patients: symptomatic proximal DVT  RCT: Stockings 30-40 mm Hg vs no compression
PTS Prevention -3 -

- KANH study, the SOX trial, on line Dec.2013
  - 806 patients + prox. DVT
  - DVT in the last 14 days before inclusion
  - GCS 30-40 mm Hg vs placebo stockings
  - 2 years
  - 2 PTS definitions: Ginsberg criteria + Villalta score ≥ 5

Questions:
- Precise applied pressure on the leg?
- Double-blind?
- Compliance? +++
  - Indulgent definition
  - Patient’s education
  - Declarative reports
Chronic Venous Disease -1-

► **Amsler** Meta analysis 11 RCTs, 1453 individuals:
  - 794 healthy exposed to long lasting orthostatism
  - 552 patients + mild CVI (C1-C3),
  - 141 post-varicose veins surgery.

→ **On edema and symptoms:**
A 10-20 mmHg compression is superior to:
  - < 10 mmHg compression (p< 0.0001)
  - a placebo compression stocking,
  - no compression

► **O’Meara** Meta analysis 48 RCTs, 4321 patients:
→ Compression accelerates **ulcers healing**.
→ Multicomponents bandages++

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An innovative approach: NUMERICAL SIMULATION

Pressions measurement Software (LP)

Pressions actually applied on the skin, by the product

Brevet INNOTHERA FR 0304931

Venous Return Simulator (VRS)

Product action on the venous hemodynamic

Brevet INNOTHERA FR 0501569

3-....With Imagery & numerical technics development
Vitesse (cm/s)

Time (s)

Great Saphene varicosis

reflux
reflux réduction of 80%
Proper size of a class 2 stocking

Pression reçue par la patiente (mmHg)

18 mmHg

Sans bas
Bas trop petit
Bas à la bonne taille
Bas trop grand
Stocking class 2, too small
Stocking class 2, too large

12 mmHg

Sans bas
Bas trop petit
Bas à la bonne taille
Bas trop grand
Varisma Comfort, Veinus et Actys 20

Chauveau & al, Taille des bas de compression médicale et hémodynamique veineuse. Phlébologie 2011

4......and qualitative improvements

- Sizing
- Donning, or easy to put on (FIP)
- Stay up without Tourniquet’s syndrom (3up)
- Soft touch
- Fine material
- Transparency
- Esthetism, colors, patterns…

Efficacy, Comfort & Elegance …….
Merci de votre attention