Compression after trauma

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The hospital
The Clinic

- 1.2 tissue viability nurse
- 0.4 medical doctor

- 7 beds in a ward of internal medicine

**Annual production:**
- 1500 out patient visits
- Support to the wards at the hospital
- Support and advice to home care and nursing homes, using telemedicine
- (catch area 225,000 inhab.)
Trauma

• High energy lesions
• Sharp lesions
• Low energy lesions
  – Blunt trauma
Blunt trauma

- Walking round the supermarket - trolleys
- Entering a bus

- Typical locations:
  - Lateral aspect of the calf
  - Anterior aspect of the calf
The typical patient

- From the database:
  - 2/3 are women
  - Average age 71 years

- The patients have had the ulcer for months before they are referred to us
What happens?

depth tissue injury

• The blunt trauma causes cell deformity, which within minutes causes cell damage leading to cell death.*

• Microoedema develops, leading to further cell damage

• The content of the cells is hyperosmolaric and contains enzymes, leading to further destruction

Aging skin

• Aging
  – Reduction of collagen and elastic fibers*
  – Basalmembrane flattens out
  – The epidermis goes thinner

• After menopause the amount of collagen reduces with 30% within a few years

Ageing skin

**Younger Skin**
- Epidermis
- Dermis
- Hypodermis
- Hyaluronan and water
- Elastin
- Collagen

**Older Skin**
- Deep wrinkle
- Oxytalan
- Fibroblast
- Capillary vessel
Data from our clinical database

TOP 5

1. Traumatic ulcers 558
2. Pressure ulcers 503
3. Venous leg ulcers 450
4. Neuropathic foot ulcers 444
5. Neuroischaemic foot ulcers 283

Hypothesis

- In the younger age the higher amount of collagen (and elastin) provides an ”internal” compression in relation to deep tissue injury

- As collagen (and elastin) is lost, this capability is lost, allowing the deep tissue injury to develop into an ulcer
Compression applied:

• healing rate for traumatic ulcers:
  – 25% per week
  – Average time to heal: 10 weeks

• Venous leg ulcers:
  – 18% per week
Conclusion

• Compression with an elastic stocking/bandage with moderate to high stiffness, shall be applied in spite of the fact, that no oedema is visible.
• **Carry on** trying to convince staff at emergency clinic to apply compression in patients with blunt trauma on the lower leg
Thank you for your attention