Improving CLI care – A multidisciplinary challenge

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Disclosure

Speaker name:
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I have the following potential conflicts of interest to report:
- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

I do not have any potential conflict of interest
CLI – critical limb ischaemia

an advanced stage of peripheral artery disease (PAD)

characterized by
• chronic ischemic rest pain
• ischemic skin lesion (ulcer or gangrene)
in one or both legs.

negative prognosis:
1-year amputation rates of approximately 12%
mortality of 50% at 5 years and 70% at 10 years.

often accompanied by diabetes mellitus
with severely infected and non-healing wounds
Fate of the patients presenting with CLI.

Primary goal

• relief ischemic pain
• heal ulcers
• prevent limb loss
• improve quality of life / prolong survival
Revascularisation

Why is it so important to improve the perfusion of the smallest vessels?
wound healing depends on a sufficient perfusion of skin capillaries.
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skin microvascular dysfunction

Despite a normal total skin microcirculation, the capillary (nutritional) circulation is markedly reduced.

NOTE:

tissue viability depends on sufficient capillary perfusion!
Revascularisation

- large vessels
  - endovascular/surgical procedures
  - conservative treatment
  - anticoagulants
  - prostanoids
  - low-dose urokinase
  - intermittent pneumatic compression

- small vessels

  to improve microperfusion

\[\text{Weck M. Ther Adv Endocrinol Metab (2011) 2(6) 247-555}\]
Wound care

g→ cleansing the ulcer
g→ debridement of the ulcer
    remove all the non-viable tissue
    (dead skin inhibits the development of healthy new tissue and
     is a matrix for bacteria)

• use scalpel/abrasor
Wound care

→ cleansing the ulcer
→ debridement of the ulcer
remove all the non-viable tissue
(dead skin inhibits the development of healthy new tissue and is a matrix for bacteria)

• use scalpel/abrasor
• use larval therapy

maggots are placed on the wound site and eat away at the necrotic material, leaving the healthy tissue behind

Lucilia sericata larvae

Cazander G et al. 2013. DOI 10.1002/bies.201300071
Wound care

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→ appropriate wound dressing
• controlled moist environment
Wound care

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→ appropriate wound dressing
• controlled moist environment
• awaiting auto-amputation

well demarcated, dry gangrenous digit
Wound care

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→ debridement of the ulcer
  remove all the non-viable tissue
  (dead skin inhibits the development of healthy new tissue and is a matrix for bacteria)

• use scalpel/abrasor
• use larval therapy

→ appropriate wound dressing
• controlled moist environment
• awaiting auto-amputation
• remove callus surrounding the ulcer

Why?

Callus
= most important preulcerative lesion in diabetic feet
= sign of to much plantar pressure during walking
Off-loading

- Shoe modifications
- Cushioning insoles
- Orthotics
- Casting techniques

NOTE: The restored blood-flow may NOT compensate for repetitive tissue trauma due to high pressure or poorly fitted shoes!
Microbiological control

→ usually polymicrobial
  • Gram-positive cocci
  • Gram-negative rods
  • Anaerobics

→ obtain cultures of the wound
→ initiate immediately antibiotic treatment

→ deep infections
  • include drainage and surgical debridement
→ patient education

→ metabolic/glycaemic control

→ evaluation of coronary and cerebral arteries
  • CLI patients should have aggressive modification of their cardiovascular risk factors
  • most of CLI patients die from cardiovascular events

Short intervall follow up!

→ The CLI patient will be your patient not only for the time of revascularisation. He belongs to you for the rest of his life.
The last take home message

Rest pain is often not spontaneously reported.
→ Ask the patient!
→ Have a look at the patients legs at night:
  Does the patient lower his leg?

Remember reduced pain reception in diabetics because of neuropathy!

Early detect microperfusion deficites!
→ pre-ulcerative tissue changes
• hematoma under callus
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Early detect microperfusion deficits!
- pre-ulcerative tissue changes
  - livedo

blue toe (toe ischaemia)  Laser speckle contrast analysis  Livedo racemosa  pulse oscillography
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Remember reduced pain reception in diabetics because of neuropathy

Early detect microperfusion deficits!
→ pre-ulcerative tissue changes
• hematoma, callus, livedo

Have a look not only at the legs, but also at the shoes of your patient!
Thank you very much!

See you again in 2019!
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