

Toolbox for DFU management in Primary Care

Diabetes Metabolic Control



- HbA1c
- Glycemia
- Diet
- Activity
- Medication

Vascular status



- Pulse palpation
- Skin features:
 - Pale
 - Cyanosis
 - Cold
 - Absence of leg hair

Comorbidities



- Chronic Kidney Disease
- Cardiovascular Disease
- Obesity
- Hypertension
- Dyslipidemia

Debridement



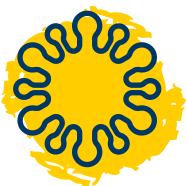
Type

- Sharp/Surgical
- Autolytic

Recommendations

- Sterile and prescribed solutions
- Avoid common disinfectant
- Avoid self-made solutions

Discard infection



LOCAL

- Probe-to-Bone Test
- Pain/Tenderness
- Local warmth
- Cellulitis
- Pus
- Others:
 - Friable wound bed tissue
 - Exudate increase
 - Undermining edge
 - Fistulous track
 - Bad odour

SYSTEMIC

- Fever
- Asthenia/Anorexia
- Flogistic indexes increased



Offloading

Location of the ulcer

- Plantar/dorsal/lateral
- Forefoot/midfoot/rearfoot

Activity

- Sedentarism
- Active (outdoors/indoors)



Deformities

- Bone prominences
- Rigid foot
- Charcot foot

Dressing selection



1. Suspecting biofilm or non-controlled bacteria load

Antimicrobial dressing and close monitoring of the ulcer to avoid infection worsening or spreading

2. Sucrose Octasulfate (TLC-NOSF) impregnated dressing

- Neuroischaemic DFU from Day 0
- Non improved ulcers (less than 30% improvement after 2 weeks)

3. Non complicated DFU (No Peripheral Artery Disease, No Ischemia, No Infection)

Select dressing principally on the basis of exudate control, comfort and cost



Alarm signs

Infection

LOCAL

- Granulation tissue less effective
- Redness
- Pain

SYSTEMIC

- Increase glycemia
- Fever
- Asthenia/anorexia
- Flogistic indexes increased
- Pain

Ischemia

LOCAL

- Necrosis of the edge
- Cyanosis
- Less progress of the wound

SYSTEMIC

- Pain

Follow the Fast Track Pathway for appropriate referral



FAST TRACK PATHWAY FOR DIABETIC FOOT ULCERATION DURING COVID-19 & BEYOND



CO-MORBIDITIES

- HEART FAILURE CLASS
- END STAGE RENAL FAILURE
- DEPRESSION

FIRST ASSESSMENT

HOLISTIC APPROACH*

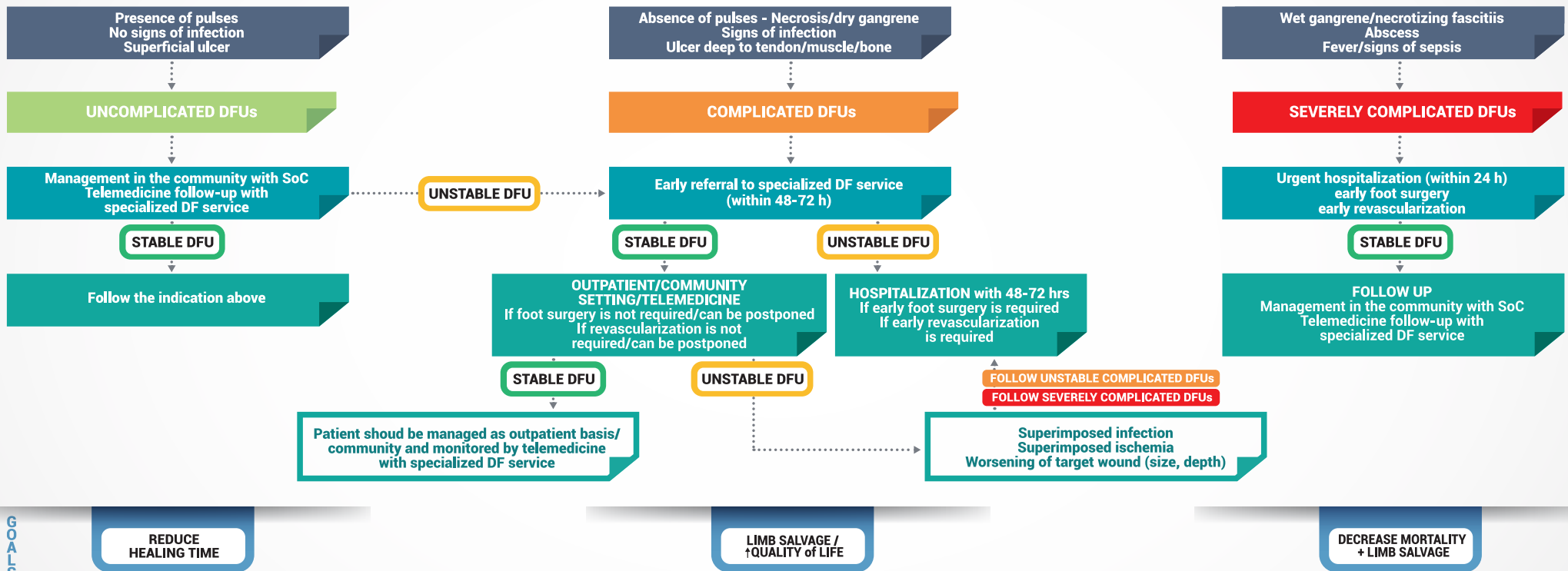
- MEDICAL HISTORY
- CLINICAL EXAM.
- BIOLOGY

INVESTIGATION FOR SIGNS/SYMPTOMS OF COVID-19 INFECTION

* : take care of psycho-social context of patient



PATIENT WITH DIABETIC FOOT ULCERATION



GOALS

- REDUCE HEALING TIME
- LIMB SALVAGE / ↑QUALITY OF LIFE
- DECREASE MORTALITY + LIMB SALVAGE

PRINCIPLES OF STANDARD OF CARE

Offloading: Reduction of extrinsic and/or intrinsic biomechanical stress/plantar pressure is essential for ulcer protection and healing. The use of Non-removable knee-high offloading devices, total contact casts (TCC), removable walkers or specific footwear should be used tailored to individual need and according to local available resources. Patients should be educated to minimise standing and walking. Regular follow -up should be undertaken to ensure clinical effectiveness and compliance.

Restoration of foot perfusion: In patients with peripheral arterial disease (ankle pressure <50mm Hg, ABI <0.5, toe pressure <30mmHg or TcpO2 <25 mmHg), revascularisation should be considered. When an ulcer does not show signs of healing within 4 weeks, despite optimal management, further vascular assessment and revascularisation should be considered (even if the tests above fall within acceptable /normal ranges).

Treatment of infection: When there are clinical signs of infection, empiric and

broad-spectrum antibiotic therapy should be administered after obtaining microbiological samples (ideally deep tissue), followed by adjustments according to clinical response and microbiological results. Removal of any necrotic or non-viable tissue following comprehensive assessment of infection severity is required.

Metabolic control/Holistic management: Metabolic approach requires optimisation of glycaemic control (if necessary with insulin), the treatment of malnutrition and oedema if present. Optimal management of relevant co-morbidities is mandatory.

Local wound care: Frequent ulcer inspection/assessment, debridement and redressings should be undertaken. Dressing selection is based upon ulcer findings (characteristics of wound bed, exudation, size, depth, local pain). In case of neuro-ischemic ulcers, dressings with TLC-NOSF (Lipido-Colloid Technology with Nano-OligoSaccharide Factor) should be considered.

SIGNS OF ALERT : CLINICAL PICTURES TO CONSIDER EARLY REFERRAL TO SPECIALIZED DIABETIC FOOT SERVICES)

- Superimposed infection (onset of hyperemia around the wound, cellulitis, pus secretion, new area of wet gangrene, oedema, pain, fever)
- Superimposed ischemia or ischemia evolution (new areas of necrosis or gangrene, rest pain, hyperemia of the foot)
- Worsening of target wound (extension of ulcer size, involvement of soft tissues/bone, signs of ischemia or infection as above)

GLOSSARY

a. **Heart failure:** Patient on current treatment for heart failure. For GPs: Structural Heart disease with prior or current treatment for Heart Failure (e.g. patients with known structural heart disease and shortness of breath and fatigue, reduced exercise tolerance)

b. **End stage renal disease:** Patient on renal replacement (i.e peritoneal dialysis or Hemodialysis)

c. **Depression:** patient on medical therapy for depression or depression symptoms which include feeling sad or having a depressed mood, loss of interest or pleasure in activities once enjoyed, changes in appetite (weight loss or gain unrelated to dieting), trouble sleeping or sleeping too much, loss of energy or increased fatigue, increase in purposeless physical activity (e.g., hand-wringing or pacing) or slowed movements and speech (actions observable by others), feeling worthless or guilty, difficulty thinking, concentrating or making decisions, thoughts of death or suicide. The symptoms must last at least two weeks for a diagnosis of depression

d. **Necrosis:** Devitalized (dead) tissue

e. **Gangrene:** Death of tissue in all tissue layers (cutis, tendon, fascia, muscle) due to insufficient blood supply. Without infection this generally results in dry and black tissue, frequently called dry gangrene; when the tissue is infected, with accompanying putrefaction and surround cellulitis, it is often called wet gangrene

f. **Abnormal pulses:** absence of foot pulses on palpation

g. **Signs of granulation:** This is a light red, soft, moist and granular new connective tissue that appears on the surface of a lesion during the healing process.

h. **Signs of epithelization:** appearance of new epithelium tissue covering the wound with reduction of ulcer surface

i. **Cooperation with first line:** sharing data at the initial treatment of the patient and referral after acute phase with periodical re-check

j. **Phlegmon:** spread inflammation of soft or connective tissue with purulent exudate due to bacterial infectious process

k. **Fever or signs of sepsis:** Patient with a raised body temperature, and an associated cold sweat and shivering or drop in blood pressure due to infection. See guidance doc

l. **Criteria of a specialist Diabetic Foot Clinic:** Diabetic Foot Center which provides out patient and preferable inpatient care with a multidisciplinary team composed of diabetologist/,internist, podiatrist or specialist nurse and a surgeon , preferable with skills of revasculariation and good knowledge of surgery of deep foot infections with a 24H urgency service

STABLE DFU

an ulcer that is healing or not healing but not impairing

UNSTABLE DFU

a foot ulcer that is progressing due to underlying infection or ischemia or with impairment in size and depth

COVID Symptoms – Please follow local & national agreed guidelines. As a guide : high temperature, new continuous cough and a loss or change to your sense of smell or taste have been described as symptoms consistent with COVID 19

GENERAL REMARKS

- ALARM 1: Patient with recurrent ulcers need to be followed immediately by their foot team
- ALARM 2: The document may need alterations according to individual legislation in countries