Diabetic Foot Ulcer Treatment Guidelines

Diabetic foot ulcers are open sores or wounds that typically develop on the bottom of the feet or toes in individuals with diabetes. These ulcers are caused by a combination of factors, including poor circulation, nerve damage, and pressure from shoes or walking.

The treatment options laid out in this handout are based on the *IWGDF/IDSA Guidelines on the Diagnosis and Treatment of Diabetes-related Foot Infections.*

Recommendation 1

- Diagnose a soft tissue diabetes-related infection clinically based on the presence of local or systemic signs and symptoms of inflammation.
- Asses the severity of any Diabetes-related foot infection (DFI) using the International Working Group on the Diabetic Foot (IWGDF)/Infectious Diseases Society of America (IDSA) classification scheme.

Recommendation 2

- Consider hospitalising all persons with diabetes and a foot infection who have either a severe foot infection as classified by the IWGDF/IDSA classification or a moderate infection which is associated with key relevant morbidities.

Recommendation 3

- Assess inflammatory serum biomarkers such as C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), or procalcitonin (PCT) in a person with diabetes and a possible infected foot ulcer for whom the clinical examination is diagnostically equivocal or uninterpretable.

Recommendation 4

- For diagnosing diabetes-related foot soft-tissue infection, the IWGDF/IDSA suggest not using foot temperature (however measured) or quantitative microbial analysis. (Conditional; Low).

Recommendation 5

- In a person with suspected soft tissue DFI, consider a sample for culture to determine the causative microorganisms, preferably by aseptically collecting a tissue specimen (by curettage or biopsy) from the wound.

Recommendation 6

- Use conventional, rather than molecular, microbiology techniques for the first-line identification of pathogens from soft tissue or bone samples in a patient with a DFI.

Recommendation 7

- In a person with diabetes, consider using a combination of probe-to-bone test, plain X-rays, and ESR, or CRP, or PCT as the initial studies to diagnose osteomyelitis of the foot.

Recommendation 8

- Perform magnetic resonance imaging (MRI) when the diagnosis of diabetes-related osteomyelitis of the foot remains in doubt despite clinical, plain X-rays and laboratory findings.

Recommendation 9

- Consider using positron emission tomography (PET), leucocyte scintigraphy, or single photon emission computed tomography (SPECT) as an alternative to MRI for the diagnosis of diabetes-related osteomyelitis of the foot.

Recommendation 10

- In a person with diabetes for whom there is a suspicion of osteomyelitis of the foot (before or after treatment), bone (rather than soft tissue) samples should be obtained for culture, either intraoperatively or percutaneously.

Recommendation 11

- Do not treat clinically uninfected foot ulcers with systemic or local antibiotic therapy when the goal is to reduce the risk of new infection or to promote ulcer healing.

Recommendation 12

- Use any of the systemic antibiotic regimens that have been shown to be effective in published randomised controlled trials at standard (usual) dosing to treat a person with diabetes and a soft tissue infection of the foot.
- Administer antibiotic therapy to a patient with a skin or soft tissue diabetic foot infection for a duration of 1–2 weeks.
- Consider continuing treatment, perhaps for up to 3–4 weeks, if the infection is improving but is extensive and is resolving slower than expected or if the patient has severe peripheral artery disease (PAD).
- If evidence of infection has not resolved after 4 weeks of apparently appropriate therapy, re-evaluate the patient, and reconsider the need for further diagnostic studies or alternative treatments.

Recommendation 13

- Select an antibiotic agent for treating a DFI based on the likely or proven causative pathogen(s) and their antibiotic susceptibilities; the clinical severity of the infection; published evidence of the efficacy of the agent for infections of the diabetes-related foot; the risk of adverse events including collateral damage to the commensal flora; the likelihood of drug interactions; agent availability and costs.

Recommendation 14

- Target aerobic gram-positive pathogens only (beta-haemolytic streptococci and Staphylococcus aureus including methicillin-resistant strains if indicated) for people with a mild DFI, who have not recently received antibiotic therapy, and who reside in North America or Western Europe.

Recommendation 15

- Do not empirically target antibiotic therapy against Pseudomonas aeruginosa in cases of DFI in temperate climates, but use empirical treatment of P. aeruginosa if it has been isolated from cultures of the affected site within the previous few weeks, in a person with moderate or severe infection who resides in Asia or North Africa.

Recommendation 16

- Consider a duration of up to 3 weeks of antibiotic therapy after minor amputation for diabetes-related osteomyelitis of the foot and positive bone margin culture and 6 weeks for diabetes-related foot osteomyelitis without bone resection or amputation.

Recommendation 17

- Use the outcome at a minimum follow-up duration of 6 months after the end of the antibiotic therapy to diagnose remission of diabetes-related osteomyelitis of the foot.

Recommendation 18

- The urgent surgical consultation should be obtained in cases of severe infection or moderate DFI complicated by extensive gangrene, necrotising infection, signs suggesting deep (below the fascia) abscess, compartment syndrome, or severe lower limb ischaemia.

Recommendation 19

- Consider performing early (within 24–48 h) surgery combined with antibiotics for moderate and severe DFIs to remove the infected and necrotic tissue.

Recommendation 20

- In people with diabetes, PAD and a foot ulcer or gangrene with infection involving any portion of the foot obtain an urgent consultation by a surgical specialist as well as a vascular specialist in order to determine the indications and timings of a drainage and/or revascularisation procedure.

Recommendation 21

- Consider performing surgical resection of infected bone combined with systemic antibiotics in a person with diabetes-related osteomyelitis of the foot.

Recommendation 22

- Consider antibiotic treatment without surgery in case of (i) forefoot osteomyelitis without an immediate need for incision and drainage to control infection, (ii) without PAD, and (iii) without exposed bone.

Recommendation 23

- The IWGDF/suggests not using the following treatments to address DFIs: (a) adjunctive granulocyte colony-stimulating factor (G-CSF) treatment or (b) topical antiseptics, silver preparations, honey, bacteriophage therapy, or negative-pressure wound therapy (with or without instillation). (Conditional; Low).

Recommendation 24

- The IWGDF/IDSA suggest not using topical (sponge, cream, and cement) antibiotics in combination with systemic antibiotics to treat soft-tissue infections or osteomyelitis of the foot in patients with diabetes (Conditional; Low).

Recommendation 25

- The IWGDF/IDSA suggests not using Hyperbaric oxygen (HBO) therapy or topical oxygen therapy as an adjunctive treatment for the sole indication of treating a DFI.

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