Antimicrobial Guidance for Diabetic/General Foot Infections

NHS Lanarkshire

General guidance: This guidance replaces the previous diabetic foot infection guidance and should be utilised for any patients presenting with a foot infection (including diabetic foot infections). When patients present with a foot infection, the Podiatry team (inpatients) or the Community Podiatry service should be notified at the first possible opportunity. For Podiatry hub in the community contact - 01698 753753. Consider whether antimicrobial agents are required; have a low threshold for antimicrobial use if there is any evidence of local or systemic infection.

Sampling:

- Collect appropriate specimens including curettage of wound base, biopsy tissue or bone samples and aspiration of secretions, before systemic or topical (e.g. Prontosan) antimicrobial treatment.
- If wound swab is the only appropriate option for sampling, clean ulcer with sodium chloride 0.9% before removing superficial slough and swab as deep as possible.
- Ensure appropriate clinical details, current antimicrobial and sample type are included on culture and sensitivity requests

Interpreting microbiology results:

- Infection may be polymicrobial, e.g. a combination of Staphylococcus aureus and ß-haemolytic Streptococci
- The deeper the ulcer, the more likely there is to be anaerobic infection.
- Colonizing organisms (e.g. Coliforms and Enterococci) can usually be ignored, but interpretation depends on clinical assessment of the patient and understanding of how the sample was obtained.
- A bone or tissue sample may grow colonizing organisms too, if the bone or tissue is exposed to the environment.
- Current antibiotics may suppress growth of some organisms – eg Staphylococcus aureus and Streptococci if patient has been on Flucloxacillin.
- Reviewing current and recent previous microbiology results is key to antibiotic prescribing.
- MRSA rates are currently low. Antibiotics should be chosen based on previous reported antibiotic susceptibilities for patients known to be colonized with MRSA.

Prescribing guidance:

- Pregnancy should be excluded and antimicrobial agents tailored for this cohort.
- When prescribing gentamicin and vancomycin refer to the NHSL calculator and guidance.
- When prescribing co-trimoxazole please refer to the Co-trimoxazole - prescriber information
- When Linezolid[6] is recommended by an infection specialist, please refer to Linezolid - prescriber information
- When prescribing fluoroquinolones (ciprofloxacin, levofloxacin, ofloxacin etc.) please be aware of the following safety concerns when prescribing these agents, as per the MHRA warning: Complications include QTc prolongation, CDI, reduced seizure threshold, tendon rupture/tendonitis, suicidal thoughts and behaviours and aortic dissection.
- Chronic renal disease (i.e. eGFR<59ml/min) is common in this population and dosage may need to be adjusted.
- For drug-drug interactions refer to Stockley's drug interaction checker

Clostridioides difficile:

- Patients prescribed cephalosporins, co-amoxiclav, clindamycin and fluoroquinolones are at a higher risk of developing Clostridioides Difficile Infection (CDI).
- Patients should be educated on the risk of CDI and what to do if they develop severe diarrhoea, whilst on antimicrobial therapy.
- Refer to the following guidance for advice on managing this: SAPG - Management of CDI

Antimicrobial choice:

- Empirical antibiotic choice should be based on below guidance, but with consideration for recent/previous sensitivities, previous antimicrobial use, and appropriateness of agent based on clinical setting (including consideration of IV vs oral route) and patient factors, e.g. co-morbidities, recent C.difficile infection, renal impairment, allergies, etc.
- Review antimicrobial choice when culture results are available.

Mild infection

Infection with no systemic manifestation involving:

- only the skin or subcutaneous tissue (not any deeper tissues)
- any erythema present does not extend more than 2cm around the wound

Treatment duration is typically 1-2 weeks. Longer courses are dependent on clinical response and microbiology results.

Preferred antimicrobial therapy:

ORAL Flucloxacillin[7] 500mg - 1g four times daily

True penicillin allergy:

ORAL Doxycycline 100mg twice daily.

OR

ORAL Clindamycin[4] 300mg - 450mg four times daily

OR

ORAL Co-trimoxazole[1,3,4,5] 960mg twice daily

Moderate infection

Infection with no systemic manifestation involving:

- erythema extending equal to or more than 2cm from the wound margin +/-
- tissue deeper than skin and subcutaneous tissue (e.g., tendon, muscle, joint, bone)

Escalate to treatment of moderate infection when there are signs of spreading infection (e.g. cellulitis or lymphangitis) or unsatisfactory clinical response to antimicrobial therapy for mild infection.

Preferred antimicrobial therapy:

ORAL Flucloxacillin[7] 1g four times daily **AND**
ORAL Metronidazole[4] 400mg three times daily
OR
For patients requiring IV Therapy - refer to OPAT

True penicillin allergy/osteomyelitis:

ORAL Clindamycin[4] 450mg four times daily **AND**
ORAL Doxycycline 100mg twice daily
OR
For patients requiring IV Therapy - refer to OPAT

ALTERNATIVELY
ORAL Co-trimoxazole[1,3,4,5] 960mg twice daily **AND**
ORAL Metronidazole[4] 400mg three times daily

Refer to OPAT for consideration of outpatient management with IV antibiotics prior to admitting for inpatient treatment. See OPAT section below for guidance.

Severe infection

Any foot infection in an acutely deteriorating patient with associated systemic compromise/ sepsis.

Assess acute deterioration using your clinical judgment alongside a validated scoring system (NEWS2 score of 5 or more)

Within 1 hour of the risk being recognised; take blood cultures, measure serum lactate, assess patient urinary output, resuscitate the patient and give IV antimicrobial therapy as follows:

Preferred antimicrobial therapy:

IV Flucloxacillin[3,7] 2g four times daily **AND**
IV Clindamycin 600mg four times daily **AND**
IV Gentamicin[2] **AND**
ORAL Metronidazole[4] 400mg three times daily

True penicillin allergy:

IV Vancomycin[2] **AND**
IV Clindamycin 600mg four times daily **AND**
IV Gentamicin[2] **AND**
ORAL Metronidazole[4] 400mg three times daily

Additional Antimicrobial Prescribing Advice

1. Avoid/Caution in pregnancy or breastfeeding. Consult BNF for details.
2. Gentamicin/Vancomycin refer to online calculators.
3. Caution in renal impairment – see BNF or pharmacy for advice.
4. High excellent oral bioavailability, IV route available for NBM or vomiting.
5. Not recommended for patients with suspected/confirmed renal impairment. Monitoring is essential for this cohort - see NHSL Co-trimoxazole information for prescribers.
6. ALERT Antibiotic - Consult Second line Policy on NHS Lanarkshire Guideline App.
7. Monitor sodium.

Osteomyelitis
Treatment should be guided by culture results whenever possible. If no culture and sensitivity results are available, follow empirical guidance above. IV therapy must be used if there are systemic signs of sepsis and considered if there is extensive local infection - follow "Severe infection". Where oral therapy is suitable i.e. for patients with a localised infection without systemic signs of sepsis - follow "Moderate infection - osteomyelitis". Clinical response should be monitored carefully. Duration of therapy is typically six weeks (minimum), but up to three months may be required. If there is a poor clinical response consider covering for Gram negative pathogens.

Outpatient Parental Antimicrobial Therapy (OPAT)
Consider referral to the OPAT service for patients requiring prolonged IV therapy or complex oral therapy (co-trimoxazole or linezolid) or where oral antimicrobials are not sufficiently managing the infection but there are no signs of systemic infection (NEWS 0-1). For referral form and OPAT criteria, please refer to the FirstPort OPAT page - Outpatient Parental Antimicrobial Therapy (OPAT).

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