DIABETIC FOOT ULCER

NHS Tayside

- Antibiotic therapy is to treat infection, NOT heal ulcers
- Infection specialist advice should be sought if any uncertainty.
- Empirical antibiotic choice and dose is dependent upon: severity of infection, clinical suspicion of causative organism, availability of previous culture results, patient drug tolerances/toxicities, comorbid factors.
- Samples for microbiology should be obtained from all ulcers prior to initiation of antibiotic therapy.
- **Targeted therapy based on good microbiological sampling is always preferred when available.**
- Empiric therapy directed at *Pseudomonas aeruginosa* is usually unnecessary except for patients with risk factors for true infection with this organism. If high suspicion then discuss oral/IV options with ID/micro.
- All doses assume normal renal and hepatic function. Dose adjustments are not required for age.
- Monitoring - routine monitoring for short durations should not be required. Weekly U & E's and FBC are required for IV or prolonged durations. Some agents may also require weekly LFT's. Discuss with ID for additional advice

Severity (likely infecting organism)	**MILD** (MSSA, Streptococci, MRSA)	**MODERATE** (MSSA, Streptococci, enterobacteriaceae, obligate anaerobes,MRSA)	**SEVERE** (MSSA, Streptococci, enterobacteriaceae, obligate anaerobes,MRSA)	**OSTEOMYELITIS** (MSSA, Streptococci, MRSA)
Definition	Either: (a) 2 or more features of inflammation: pus,erythema, pain, tender, warmth, induration Or (b) Cellulitis <2cm. Confined to skin or subcutaneous tissue No evidence of systemic illness	As per mild with either: (a) Lymphatic streaking, deep tissue infection (subcutaneous, fascia, tendon, bone), abscess Or (b) Cellulitis >2cm No evidence of systemic illness (a) Patients should normally be reviewed in secondary care (b) Patients may be treated in primary care if no complicating factors	Any infection with evidence of severe sepsis. Presence of critical ischaemia may make the infection severe.	
Duration/Notes	**7 days**	**7 days** (total IV/PO) assuming not deep infection/bone infection	7-10days (total IV/PO) 14 days IV if *S. aureus* bacteraemia Review need for gram negative cover and rationalise therapy depending on microbiology results	4-6 weeks therapy initially. For acute presentations usually at least 1 week of IV therapy initially. NB outpatients may receive full treatment course as oral. Review need for gram negative cover and rationalise therapy depending on microbiology results
Antibiotic naive (Patients who have not had antibiotics for DFU in the previous month) **No penicillin allergy** (for patients with penicillin allergy see next page)	Flucloxacillin 1g qds (oral)	Flucloxacillin 1g qds (oral) + Metronidazole 400mg tds (oral) If deep tissue infection: Flucloxacillin 2g qds (IV) + Metronidazole 400mg tds (oral)	Flucloxacillin 2g qds (IV) + Gentamicin (IV) or Aztreonam if appropriate + Metronidazole 400mg tds (oral) or 500mg tds (IV) If necrotising faciitis seek plastics advice and refer to cellulitis guidance for treatment.	**Acute:** Flucloxacillin 2g qds (IV) Consider additional gram negative and anaerobic cover as per severe regime if patient not improving **Chronic:** Avoid empirical treatment and use pathogen directed therapy from biopsy results. If empirical treatment requires to be initiated recommend doxycycline 100mg bd or co-trimoxazole 960mg bd + /-metronidazole 400mg tds (oral) Seek advice if require gram negative cover or patient is not improving.

Severity	MILD (MSSA, Streptococci, MRSA)	MODERATE (MSSA, Streptococci, enterobacteriaceae, obligate anaerobes,MRSA)	SEVERE (MSSA, Streptococci, enterobacteriaceae, obligate anaerobes,MRSA)	OSTEOMYELITIS (MSSA, Streptococci, MRSA)
Non-antibiotic naive (Patients who have had antibiotics for DFU in the previous month) **OR** **Penicillin allergy**	Doxycycline 100mg bd (oral) Or Co-trimoxazole 960mg bd (oral)	Doxycycline 100mg bd + Metronidazole 400mg tds (oral) Or Co-trimoxazole 960mg bd (IV/oral) + Metronidazole 400mg tds (oral) If patient cannot tolerate doxycycline or has poor renal function (CrCl <15ml/min): Co-amoxiclav 625mg tds (oral)	Treat as above. If penicillin allergy or concerns re possible MRSA use Vancomycin (IV) instead of flucloxacillin and aim for predose level 15-20mg/l. If patient not improving seek advice.	**Acute:** Vancomycin (IV) aim for predose level 15-20mg/l Consider additional gram negative and anaerobic cover as per severe regime if patient not improving **Chronic:** Avoid empirical treatment and use pathogen directed therapy from biopsy results. If empirical treatment requires to be initiated recommend doxycycline 100mg bd (oral) +/- metronidazole 400mg tds (oral) or co-trimoxazole 960mg bd (oral) +/- metronidazole 400mg tds (oral) Seek advice if require increased gram negative cover or patient is not improving.
MRSA known carrier or proven infection Community associated MRSA is usually sensitive to doxycycline, co-trimoxazole. Check sensitivities if available.	Doxycycline 100mg bd (oral) or Cotrimoxazole 960mg bd (oral)	Vancomycin (IV) aim for predose level 15-20mg/l	Vancomycin (IV) aim for predose level 15-20mg/l Consider additional gram negative and anaerobic cover as above	Vancomycin (IV) aim for predose level 15-20mg/l Consider additional gram negative and anaerobic cover as per severe regime if patient not improving
OHPAT Discuss with ID team Tay.id@nhs.scot and OHPAT team Tay.immohpat@nhs.scot	Not applicable	If deep infection as per ID advice, options include: Ceftriaxone 2g od (IV) or Teicoplanin (IV) aim for predose level 20-30mg/l	Not applicable as requires initial hospitalisation. Once patient is stable refer to ID/OHPAT team to assess if outpatient therapy is an option.	As per ID advice, options include: Ceftriaxone 2g od (IV) or Teicoplanin (IV) aim for predose level 20-30mg/l
Post Surgical Debridement (for Osteomyelitis patients)	Empirical treatment post surgical debridement: Vancomycin IV + Metronidazole 500mg IV tds + Gentamicin IV Review at 48 hours and rationalise as per sensitivities. Refer to Bone and Joint MDT			

References:
Scottish Diabetes Foot Action Group Guidance 2016
IDSA Diabetic Foot Infection Guidance 2012

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