Adult Antibiotic Prophylaxis in Vascular Surgery

NHS Lanarkshire

General Principles of Prescribing for Surgical Prophylaxis

1. **Indication for prophylaxis** should comply with SIGN 104 guideline i.e when 'highly recommended', 'recommended' or 'considered' within guideline
2. **Choice of agent:**
   - Adhere to recommended agent in table below where possible
   - Recommendations restrict the use of cephalosporins, clindamycin, quinolones and co-amoxiclav and use narrow spectrum agents where possible
   - Take recent culture results/antibiotic therapy and additional patient risk factors into account eg. morbid obesity, multiple previous surgeries, prosthetic material, diabetes. Discuss with Infection Specialist in a timely manner prior to surgery if multidrug resistance eg. Carbapenemase producing enterobacteriaceae (CPE) isolated
   - Check allergy status of patient including nature of allergy prior to prescribing
3. **Recording of antibiotic** on ''once only'' section of drug cardex and on Anaesthetic Record Sheet.
4. **Timing of antibiotic:**
   - ❖ Optimum timing of IV antibiotics is ≤60 minutes prior to skin incision, usually at induction of anaesthesia
   - ❖ Antimicrobial cover may be sub-optimal if given > 1 hour prior to skin incision or post skin incision
5. **Frequency of administration** should be single dose only unless:
   - ❖ Operation Prolonged (see re-dosing guidance table)
   - ❖ >1.5 litre intra-operative blood loss –Re-dose following fluid replacement (see re-dosing guidance table)
   - ❖ Specifically stated in following guideline

   Document in the medical notes the indication for antibiotic administration beyond 1st dose
6. **Arrangements for MRSA and MSSA positive patients**
   - ❖ MRSA positive: Decolonisation therapy should be used prior to elective surgery and antimicrobial prophylaxis should include cover for MRSA See NHSL Policy for management of patients colonised or infected with MRSA.
   - ❖ MSSA positive: Decolonisation therapy should be used prior to certain elective vascular procedures where MSSA screening is in operation

Recommended Agents in Vascular Surgery

Vancomycin may be used as alternative to teicoplanin prophylaxis at a dose of 1g IV.

Procedure	1st Choice	If MRSA Positive or Penicillin Allergy	SIGN 104 recommendations/other comments
Amputation	Flucloxacillin 1g IV + Metronidazole 500mg IV +/- [2]Gentamicin 80mg IV (if AKI risk 40mg IV)	[1]Teicoplanin IV 400mg if <65kg or 800mg if ≥65kg + Metronidazole 500mg IV +/- [2]Gentamicin 80mg IV (if AKI risk 40mg IV)	Recommended
Arterial reconstruction/graft/ prosthetic surgery	Flucloxacillin 1g IV +/- [2]Gentamicin 80mg IV (if AKI risk 40mg IV)	[1]Teicoplanin IV 400mg if <65kg or 800mg if ≥65kg +/- [2]Gentamicin 80mg IV (if AKI risk 40mg IV)	Recommended

[1]If treatment course required after teicoplanin prophylaxis convert to vancomycin (dose according to NHSL treatment protocol with 1st dose 12 hours after teicoplanin). Clinicians should be aware of potential for allergic reactions to teicoplanin

[2]Patients considered to be at risk of AKI would have any one of the following factors: Age > 75 years, CKD (eGFR ≤59ml/min), Cardiac Failure, PVD, Diabetes mellitus, Liver Disease or the concurrent administration of other nephrotoxic drugs.

IV Antibiotic Administration and Re-dosing Guidance

- ❖ Antibiotics should be given as a bolus injection where possible
- ❖ All re-dosing guidance based on pre-op eGFR>59ml/min/1.73^2; if renal impairment present consult individual drug product literature

Antibiotic	Dose	Administration	Prolonged Surgery	>1.5L blood loss - Re-dose after fluid replacement
Flucloxacillin 1g vial	1g	Re-constitute 1g vial with 15-20ml water for injection and give by slow IV injection over 3-5 minutes	Re-dose 1g after 4 hours	1g
Gentamicin 80mg/2ml vial	80mg (40mg if AKI risk)	No dilution required. Give by slow IV injection over 3-5 minutes	If pre-op eGFR>59ml/min, re-dose at half prophylaxis dose after 8 hours	If repeat eGFR>59ml/min, re-dose at half prophylaxis dose
Metronidazole 500mg minibag	500mg	Already diluted. Give by IV infusion over 20 minutes.	Re-dose 500mg after 8 hours	500mg
Teicoplanin 400mg vial	400mg if patient weight <65kg or 800mg if ≥65kg	Re-constitute slowly with 3.14ml ampoule of water for injection provided and roll gently until dissolved. If foamy, stand for 15 minutes until foam subsides then give EACH vial by slow IV injection over 3-5 minutes.	DO NOT re-dose	200mg if patient weight <65kg or 400mg if ≥65kg
Vancomycin 1g vial	1g	Re-constitute 1g with 20ml of water for injection then give by slow IV infusion in 250ml glucose 5% or sodium chloride 0.9% over 120 minutes. Begin infusion 2 hours prior to procedure.	DO NOT re-dose	DO NOT re-dose

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