Doncaster and Bassetlaw Teaching Hospitals
NHS Foundation Trust

TEICOPLANIN DOSING AND MONITORING GUIDELINE

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This document is part of antibiotic formulary guidance
Formulary guidance holds the same status as Trust policy

Introduction

Teicoplanin is a glycopeptide antibiotic which is used to treat serious staphylococcal and streptococcal infections. Due to its long half-life, teicoplanin requires the administration of loading doses to achieve satisfactory serum levels. Dosing is individualised based on weight and renal function to achieve target pre-dose (trough) levels.

Teicoplanin is potentially nephrotoxic and is also associated with blood dyscrasias – regular monitor of FBC and U&E is required.

Teicoplanin use is restricted to the indications in the Trust antibiotic guidelines. Therefore use outside Trust guidelines must be discussed with a Microbiologist (see Policy for Restricted Antimicrobials).

Dosing in adults with normal renal function (based on actual weight)

- Loading dose is based on patient's actual body weight
- After loading regimen, maintenance dose should be prescribed once daily based on renal function / actual body weight

<table>
<tr><th>Indication</th><th>Dose</th><th>Frequency</th><th>Target trough concentration (Monitoring is not always required – see below**)</th></tr>
<tr><td>-Skin and soft tissue infections
-Pneumonia
-Complicated urinary tract infections</td><td>6mg/kg</td><td rowspan="3">Loading regimen:
12-hourly for first 3 doses

followed by

Maintenance regimen:
24-hourly dosing</td><td>Pre 15-30 but <60 mg/L</td></tr>
<tr><td>-Severely unwell patients (e.g. bacteraemia, septic shock)
-Bone & Joint infections, including discitis</td><td>12mg/kg (maximum 1.2g)</td><td>20 – 40 but <60 mg/L</td></tr>
<tr><td>-Infective endocarditis</td><td>12mg/kg (maximum 1.2g)</td><td>30 – 40 but <60 mg/L</td></tr>
</table>

NB: Round the dose to nearest 200mg

Dose adjustments in renal impairment

- Teicoplanin is almost exclusively renally excreted so doses should be reduced in renal impairment.
- Dose adjustment is not required until after Day 4 of treatment. Give normal dose on Days 1 – 4, then adjust for renal function on Day 5.
- Calculate the creatinine clearance using the Cockcroft-Gault equation below:

$$\text{Creatinine Clearance (ml/min)} = \frac{[(140 - \text{age}) \times \text{weight (kg)}] \times 1.23 \text{ (male) or } 1.04 \text{ (female)}}{\text{Serum creatinine (micromol/L)}}$$

Creatinine Clearance* (ml/min) ***Do not use eGFR**	Loading dose	Maintenance Dose NB: Continue the full (normal dose) until Day 4, then adjust as below from Day 5
>60		24-hourly
30 - 60		48-hourly
<30	Give normal	72-hourly
Dialysis / renal replacement therapy patients (including PD, HD, HDF, CVVH)	loading dose	One-third of the full dose (either given as one third of the full dose each day OR as full dose every 3 days)

Administration

Doses of <800mg can be given as an IV bolus over 3 – 5 minutes or as a 30-minute infusion.

Doses ≥800mg should be infused over at least 30 minutes.

For infusions, dilute with 100ml glucose 5% or sodium chloride 0.9%.

Caution

Teicoplanin should be administered with caution in patients known to be hypersensitive to vancomycin since cross hypersensitivity may occur. However, a history of the “Red Man Syndrome” that can occur with vancomycin is not a contra-indication to teicoplanin (consider slower infusion rate, i.e. over at least 60 minutes).

Monitoring

Weekly FBC and U&E are ESSENTIAL during treatment.

Teicoplanin levels are recommended in the following situations:

- Severe / deep-seated infection including endocarditis, septic arthritis & osteomyelitis
- Prolonged course (when treatment continues for > 1 week)
- Intravenous drug users who may exhibit rapid clearance of teicoplanin

A trough level (i.e. pre-dose) should be taken on day 5 or the first normal working day thereafter. Subsequent levels should be undertaken weekly.

Assays are sent away for testing and results may not be back for few days.
Once a level has been taken, doses should only be withheld if there is concern that the level will be too high due to poor or deteriorating renal function.

If trough level >40mg/L, reduce the frequency of dosing from 24-hourly to 48-hourly and then repeat level after one week.

Side Effects

Hypersensitivity reactions (including rash, bronchospasm, fever) can occur and require discontinuation of teicoplanin. Blood dyscrasias, renal and hepatic impairment can occur rarely. Adverse effects are more likely to occur with the higher dosing schedule and with prolonged therapy.

References

1) Lamont et al. Development of teicoplanin dosage guidelines for patients treated within an outpatient parenteral antibiotic therapy (OPAT) programme. Journal of Antimicrobial Chemotherapy (2009) 64, 181 – 187.
2) Targocid SPC (Sanofi). Last updated on the eMC on 21.10.22. Accessed via https://www.medicines.org.uk/emc/product/2927/smpc#gref
3) Hull University Teaching Hospitals NHS Trust. Prescribing of Glycopeptide antibiotics (Teicoplanin and Vancomycin) in Adults Guideline
4) Severn Pathology North Bristol NHS Trust. Antimicrobial Reference Laboratory Guideline ranges for TDM 2022-2023. Accessed via https://www.nbt.nhs.uk/severn-pathology/pathology-services/antimicrobial-reference-laboratory/antimicrobial-reference-laboratory-resources