

GUIDELINES FOR USE OF TEICOPLANIN

Written by: Dr Bala Subramanian, Consultant Microbiologist

Date: July 2020

Approved by: Drugs & Therapeutics Committee

Date: February 2021

Implementation

Date: February 2021

For Review: February 2023

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

Introduction

Teicoplanin is a useful glycopeptide antibiotic which is used to treat serious staphylococcal and streptococcal infections but has no gram negative activity. It has the advantage of requiring less frequent monitoring compared to vancomycin and is also less nephrotoxic. It is a large molecule so does not always penetrate certain tissues (e.g. lung and peritoneal fluid) so should only be used when other more effective agents, such as flucloxacillin, cannot be used. Excessive use may be associated with the emergence of glycopeptide-resistant enterococci (GRE).

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). It may be indicated in the following situations:

- 1) Treatment of MRSA infection (not colonisation)
- 2) Treatment of multi-resistant gram positive infection e.g. Enterococcus faecium, prosthetic device infection with coagulase-negative staphylococcus
- 3) Treatment of serious gram-positive infections in patients allergic to other antimicrobials

Dosing (based on actual weight)

Indication	Dose	Frequency	Desired trough range
Infections that are NOT considered serious or severe (e.g. skin & soft tissue infections)	6mg/kg	12-hourly for first 3 doses (loading dose) then 24-hourly thereafter if CrCl >80ml/min	Pre 15 – 30 but <60mg/L
Serious infections (e.g. endocarditis, bacteraemia), severe sepsis or septic shock and deep seated infection (e.g. bone/joint infections)	10-12mg/kg (maximum 1g)		<i>Bone & Joint:</i> Pre 20-40 but <60mg/L <i>Endocarditis:</i> Pre 30–40 but <60mg/L <i>(if pre-dose level > 40mg/L, adjust dose – see below for advice)</i>

NB: Teicoplanin is available in 200mg and 400mg vials. Where possible, doses should be rounded to the nearest 200mg. E.g. if patient weighs 70kg, give 800mg (12mg/kg dose) or 400mg (6mg/kg dose) rather than exact multiples of 840mg and 420mg respectively.

Renal impairment

Teicoplanin is almost exclusively renally excreted, so doses should be reduced even in mild renal impairment.

Dose adjustment is not required until after the fourth day of treatment. Full dose should be given on Days 1 – 4, then adjust for renal function on Day 5 to maintain the desired trough concentration. Creatinine clearance is estimated using the Cockcroft-Gault equation:

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

Creatinine Clearance* (ml/min) *Do NOT use eGFR	Loading dose	Maintenance Dose NOTE: Continue the full (normal) dose until after day 4 and then adjust as below
Dialysis/ renal replacement therapy patients (inc. PD, HD, HDF, CVVH)	Give normal 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). [♦]
<30		Reduce dosing frequency to 1 dose every 72 hours.
30 - 80		Reduce the dosing frequency to 1 dose every 48 hours.
>80		Give normal dose 24 hourly.

[♦]Doses should ideally be given during the last 30 minutes of haemodiafiltration (HDF) for infusions, or at the end of HDF for bolus injections. If patient is not an inpatient on Renal Ward, please discuss with Renal team/Renal pharmacist for individualised dosing schedule advice.

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 dextrose 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
- Intravenous drug users who may exhibit rapid clearance of teicoplanin

Levels are ONLY needed when treatment likely to continue beyond 1 week. 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 until the following day. 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 the level after 7 days

Side Effects

Hypersensitivity reactions (including rash, bronchospasm and 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 28.8.2019. Accessed via <https://www.medicines.org.uk>
- 3) Hull University Teaching Hospitals NHS Trust. Prescribing of Glycopeptide Antibiotics (Teicoplanin and Vancomycin) in Adults Guideline (August 2017)
- 4) Severn Pathology North Bristol NHS Trust. Antimicrobial Reference Laboratory Guideline ranges for TDM 2020. Accessed via <https://www.nbt.nhs.uk/sites/default/files/Antibiotic%20Guideline%20Ranges%202020.pdf>