Teicoplanin

General Information

- Teicoplanin is a glycopeptide antibiotic similar to vancomycin that has activity against aerobic and anaerobic Gram-positive bacteria only . This includes S. aureus (both MSSA & MRSA), most but not all coagulase-negative staphylococci (S. haemolyticus are often resistant), streptococci and vancomycin susceptible enterococci. Most strains of VRE are also teicoplanin resistant.
- Teicoplanin has a significantly longer duration of action and is associated with a lower incidence of nephrotoxicity in comparison to vancomycin but it may take a longer time to reach therapeutic levels. There is no formulation that is absorbed when given orally and therefore is suitable for IV use only.
- Check renal function and calculate creatinine clearance using the Cockcroft & Gault equation before prescribing.

Cautions and Contraindications

- Teicoplanin hypersensitivity
- Patients with a history of allergy to vancomycin due to the risk of cross-sensitivity
- Patients receiving concomitant nephrotoxic or ototoxic drugs such as aminoglycosides, cyclosporine and furosemide.

Adverse Effects

- Hypersensitivity reactions including fever, rash, anaphylaxis.
- Thrombocytopenia; anaemia; neutropenia.
- Nephrotoxicity; ototoxicity.

Dosing and Monitoring

Dosing is based on weight, clinical indication and renal function (CrCl calculated using Cockcroft & Gault). (Please see MdCalc Creatinine Clearance Calculator)

Higher doses are used for deep-seated infections and may also be indicated in severe infections or critical illness.

Actual body weight is always used for dose calculations (including where BMI ≤18 and ≥30kg/m^2).

Dose adjustments in renal impairment do not need to be made until after the 4th day.

1. **Loading dose regimen is recommended in all patients**

Severity of Infection	Dosing regimen
Moderate infections e.g. • Complicated skin/soft tissue infection (without bacteraemia) • Pneumonia • Complicated UTI	**6mg/kg** using Actual Body Weight every twelve hours for the first three doses, then 6mg/kg every 24 hours thereafter.
Deep seated infections e.g. • Documented staphylococcal bacteraemia • Bone and joint infections • Infective endocarditis ***OR*** • Critically ill patients	**10-12mg/kg** using Actual Body Weight every twelve hours for the first three to five doses, then 10-12mg/kg every 24 hours thereafter

1. **Maintenance Dosing Regimen**

CrCl (ml/minute)	Loading Dose Regimen
>80	Give normal loading dose. Continue on same dose i.e. 6 or 10-12mg/kg q24h.
30 - 80	Give normal loading dose for days 1-4 inclusive. After the 4th day reduce daily dose to 50% OR give normal dose **every 48 hours**
<30	Give normal loading dose for days 1-4 inclusive. After 4th day reduce daily dose to 30% OR give normal dose **every 72 hours.**
Dialysis	Dose as in CrCl <30ml/min. Use full doses initially and seek specialist advice for subsequent dose reduction. Give dose after dialysis.

Therapeutic Drug Monitoring

TDM is not routinely recommended and are usually only required in patients due to be on teicoplanin for longer than 7 days.

TDM is indicated to ensure adequate levels are being achieved for the treatment of deep-seated infections. Teicoplanin levels are not routinely monitored because a clear relationship between plasma levels and drug toxicity has not been established.

Monitoring of trough levels are recommended at steady-state concentrations (after 5 days) have been achieved following completion of all loading doses. Therefore, **a teicoplanin trough plasma level should be taken directly before 6th dose is given.**

These laboratory investigations are not available in UHW so results may take longer than normal to be reported and are not available at the weekends.

During maintenance treatment where renal function is stable and dose adjustments have not been required, TDM may be performed once a week to ensure that these concentrations are stable.

Monitor FBC (risk of thrombocytopenia), LFTs and renal function while on treatment.

Reference ranges:

a) Skin and soft tissue infection – Pre dose 15-30 mg/L but <60mg/L
b) Bone and Joint infection – Pre dose 20-40 mg/L but <60 mg/L
c) Infective endocarditis – Pre dose 30-40 mg/L but <60 mg/L

References

1. Renal Drug Database. Teicoplanin, Reviewed 09/09/2019. Accessed 19th July 2023.
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4. Sanford Guide. Teicoplanin. Accessed 19th July 2023.
5. SPC Targocid Powder and Solvent for Solution for Injection 400mg. Accessed 19th July 2023.
6. John Hopkins Abx Guide. Teicoplanin. Updated 18th October 2022. Accessed 10th May 2024