Intravenous Tobramycin - Therapeutic Drug Monitoring (TDM) Guidance

On the microbiology request card for serum levels, please supply details of the antibiotic level required, the time and date of the sample and the time since the last dose was administered. For further details and information on the sample required please visit the Laboratories departmental page for Individual tests and select the appropriate drug from the A-Z list.

Results can be obtained electronically via TrakCare and SCI-store or from Medical Microbiology (Ext 52451). Help in interpretation of the results and dose adjustments for individual patients can be obtained from your ward Clinical Pharmacist, Specialist Antibiotic Pharmacists (Ext 51048), Medicines Information Service (Ext 52316), or out of hours the On-call Pharmacist via switchboard or from the duty medical microbiologist.

In patients with impaired renal function or antibiotic levels outwith the therapeutic range, please contact your clinical pharmacist or medical microbiologist for advice on dosage and the need for further assays.

Drug	Optimum sampling time(s)	Target Range/Points to note
Tobramycin Once daily – *for CF patients ONLY* (*see protocol*)	Pre-dose (trough) 23 hours after **first dose** (i.e. 1 hour before second dose), and also after any dosage adjustments.	Pre-dose (trough) <1mg/L Further monitoring is weekly pre-dose levels if no dose changes and normal/stable renal function. Plasma creatinine levels should be measured before the first dose of tobramycin and again with any dosage adjustments and weekly thereafter. Serum calcium, magnesium and sodium should be monitored. Auditory and vestibular function should also be monitored during treatment. See protocol for advice on interpretation of levels and dosing adjustments. *(NB: Levels not assayed in ARI – liaise with Medical Microbiology).*

Drug	Optimum sampling time(s)	Target Range/Points to note
Tobramycin Multiple Daily Dosing Regimen **(see protocol)**	Pre-dose (trough) level just before the **fourth dose** and post-dose (peak) level taken 1 hour after the end of administration of the same dose.	Pre-dose (trough) <2mg/L Post-dose (peak) 5-10mg/L Further monitoring is usually twice weekly pre-dose levels if no dose changes and normal/stable renal function. Renal function should be checked three times weekly if stable. Serum calcium, magnesium and sodium should be monitored. Auditory and vestibular function should also be monitored during treatment. See protocol for advice on interpretation of levels and dosing adjustments. *(NB: Levels not assayed in ARI – liaise with Medical Microbiology).*

References

1. Individual Drug monograph: https://bnf.nice.org.uk/drug/tobramycin.html
2. Summary of Product Characteristics – (Tobramycin 40mg/mL Injection, Hospira UK Ltd - accessed 3/6/20) www.medicines.org.uk
3. North Bristol NHS Trust Antimicrobial Reference Laboratory – Guideline Ranges 2020 - https://www.nbt.nhs.uk/sites/default/files/Antibiotic%20Guideline%20Ranges%202020.pdf
4. North Bristol NHS Trust Antimicrobial Reference Laboratory – Analytes https://www.nbt.nhs.uk/severn-pathology/requesting/test-information/tobramycin
5. NHS Grampian – Respiratory Medicine – Adult Cystic Fibrosis Guideline For Administration of Once daily Intravenous Tobramycin http://guidance.nhsg.grampian.scot.nhs.uk/sites/Grampian_Guidance/Pages/Cystic%20Fibrosis%20-%20IV%20Tobramycin.aspx
6. NHS Grampian – Respiratory Unit Guideline – Tobramycin Dosing in Non-CF Bronchiectasis – Therapeutic Drug Monitoring http://guidance.nhsg.grampian.scot.nhs.uk/sites/Grampian_Guidance/Pages/Bronchiectasis%20-%20IV%20Tobramycin.aspx