Teicoplanin – therapeutic drug monitoring, AKI and OPAT

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• OPAT service established in 2015

• Between 500-700 bed days per month

• Manage a variety of infections

• Multiple administration pathways
Teicoplanin and OPAT

• Favourable kinetic properties allow once daily or three times weekly dosing\textsuperscript{1,2}

• Considered a suitable alternative to vancomycin\textsuperscript{3,4}

• Use in certain conditions an independent risk factor for OPAT failure\textsuperscript{5}

1. Tarcogid SPC (Sanofi). Last updated on the eMC 01/02/18. Accessed via www.medicines.org.uk
Teicoplanin – therapeutic dosing

• Severe/deep seated infection – standard dosing sub-therapeutic\textsuperscript{1-3}

• Doses of up to 12mg/kg recommended for infections including osteomyelitis and endocarditis\textsuperscript{2,4}

• Renally cleared – dose adjustment required in renal impairment\textsuperscript{1,4}

• TDM recommended to ensure target levels attained

4. Tarcogid SPC (Sanofi). Last updated on the eMC 01/02/18. Accessed via www.medicines.org.uk
Case study

• 70 y/o female admitted to vascular ward at Wythenshawe for AAA repair

• ?mycotic aneurysm

• Commenced on teicoplanin 12mg/kg and ceftriaxone 2g daily for 6 weeks following ID specialist review.

• Discharged to OPAT on day 12

• Stable renal function and levels (range 20-40mg/L) until week 4 of treatment

• Week 5; level >107mg/L. Subsequently developed AKI stage 1
Case Study

- 107mg/L was a peak level – although levels of >30 persisted for 5 days after cessation

- Calculated GFR below threshold for dose adjustment; but previous levels had not shown evidence of accumulation

- Delay in processing of teicoplanin level – doses received in interim

- Risk factors; co-prescription with ramipril, known DM (diet controlled), ? reactivation of myeloma
Teicoplanin review

- Outcomes for patients treated with teicoplanin in previous 12 months examined
- Used in 12 patients for variety of indications – all treated with 8-12mg/kg
- 3 patients developed an AKI – all had a prior associated level > 60mg/L

AKI Patient characteristics:
- Prolonged courses (4-6 weeks)
- Deep seated infections
- Co-morbidities (DM, post-transplant, myeloma)
- Nephrotoxic medications
- Previously normal levels (ranging 20-40mg/L) and stable renal function
Teicoplanin and nephrotoxicity

• High threshold for dose reduction in existing renal impairment\(^1\)

• 0.1%-1% incidence of acute creatinine rise\(^1\)

• Isolated reports of AKI\(^2,3\)

• Use in cardiac surgical prophylaxis linked to increased incidence of AKI\(^4\)

1. Tarcogid SPC (Sanofi). Last updated on the eMC 01/02/18. Accessed via www.medicines.org.uk
Teicoplanin TDM

- TDM advised to ensure attainment of minimum therapeutic level\(^1\)
- No proven link between level and toxicity – limited evidence to suggest TDM is helpful to avoid toxicity\(^2\)
- Often a “send away” test with turnaround of weeks

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1. Tarcogid SPC (Sanofi). Last updated on the eMC 01/02/18. Accessed via www.medicines.org.uk
Lessons learned

- Prolonged use of high dose teicoplanin should be with caution in those with existing risk factors for AKI

- Consider long half life and time to steady state when interpreting levels

- Low threshold for dose reduction in renal impairment (GFR < 80)

- Minimum of weekly U&Es and TDM if available, more frequently if higher risk patient

- Consider dose reduction if levels towards upper end of dose range or if early signs of reduced renal function
Thank you for listening!