

## **Answers**

**The doctor asks you to calculate the starting dose for her.**

**What information do you need to know to calculate her starting dose?**

- Sex (Female), age (84 years), weight (60kg), height (158cm), serum creatinine (94  $\mu\text{mol/L}$ ).

**Calculate her creatinine clearance, using the formulas shown earlier in step 2.8**

- 31-37ml/min depending on weight used (ideal 51kg) or actual body weight.

**What dose of gentamicin would you recommend based on this renal function?**

- As her creatinine clearance is greater than 20ml/min, locally we would use a starting dose of 5mg/kg - 300mg and measure levels after the first dose.

**21 hours later, a post dose is taken, which comes back at 3.2mg/L.**

**What type of level is this? Can the Urban and Craig nomogram be used to interpret the level?**

- This is outside of the sampling window (6 – 14 hours) so the nomogram cannot be used.

**What would be your advice to the doctor?**

- As this level is nearing the due time for the next dose (at 24 hours), it is considered to be high (trough levels are taken close to when the next dose is due and should be  $< 1\text{mg/L}$ ),
- Hold gentamicin administration of the next dose and repeat a trough level in 72 hours. Do not give further doses of gentamicin until the trough level is  $< 1\text{mg/ml}$

**Day 5 of treatment Mrs X is complaining of dizziness.**

**Could this be a side effect of the gentamicin?**

- Yes gentamicin can cause ototoxicity and can affect the vestibular function of the ear

**Would you monitor for other signs of gentamicin toxicity?**

- Yes as she has had a high gentamicin level reported.

**What would you monitor?**

Adverse effects such as: Fullness in ears, tinnitus or new hearing loss (ototoxicity). Serum creatinine increase (nephrotoxicity). Vestibular disturbances (Dizziness, nausea and vomiting, vertigo, nystagmus).

She should have her kidney function monitored daily, with creatinine levels being used to recalculate creatinine clearance, and she should have a hearing test by the audiology department.

It would be advisable to discuss stopping gentamicin or using an alternative with the doctors.

The patient should have the possible adverse effects of gentamicin treatment explained to them, and the likely long-term effects.

**The microbiology department have authorised >5 days use. The patient is haemodynamically stable, as is their kidney function.**

**How often should gentamicin levels be taken to monitor therapy?**

- Levels should be repeated every day as her renal function is poor and she has required adjustments to her dosing.
- In clinical practice, the duration will tend to be reviewed on a daily basis and kept to a minimum.