

Letter to the Editor:

Daily dose of gentamicin in neonates: Four, Five mg/kg or does it matter?

Sir,

The British National formulary for Children¹ gives a once daily dose of gentamicin of four to five mg/kg. The Neonatal Formulary used by neonatal units in the Northern Neonatal Network (NNN) suggests five mg daily² with the dose interval increased for babies less than 32 weeks gestation. In our unit we use 5 mg/kg but there was felt to be a high number of trough gentamicin levels greater than 2 mg/l. Trough levels are taken one hour before the third dose was due. Concern about this issue was raised as part of implementing the National Patient Safety Agency care bundle for gentamicin (NPSA/2010/PSA001).

A telephone survey was performed of the four Neonatal Units within NNN who were asked what dose of gentamicin they used. All used 5 mg/kg. They were also asked if they measured trough gentamicin levels on all babies before their third dose and if the level was high (>2 mg/l) were hearing tests requested. All four units did.

All the trough gentamicin levels on babies treated with gentamicin from May 2010 to May 2011 were reviewed.

One hundred and ninety two babies had received gentamicin and had a trough level performed. Eighty four (43%) levels were higher than two mg/l, 62 (74%) of these 84 were in babies less than 37 weeks gestation and 22 (26%) were in term babies. Hearing tests were requested for all these babies. Local audiology policy is to do an immediate test and follow up at one year of age. In personal communications the audiology department recall few if any children referred for high gentamicin levels who failed hearing tests. Further work is planned to identify any ototoxicity in these 192 babies.

The Cochrane collaboration has published a review of once daily versus multiple doses

daily of gentamicin for treatment in suspected sepsis³. The conclusion is that neither regime is superior although once daily dosage causes less toxicity – but they do not suggest a dose. A recently published pharmacokinetic study for once daily gentamicin supported extending the dosage interval in all neonates to 36-48 hours⁴. Four mg/kg may be an alternative lower dose, but serious ototoxicity is normally only seen in babies who receive two aminoglycosides, a loop diuretic and aminoglycoside or 7 to 10 days of aminoglycoside².

Some colleagues have changed to prescribe 4 mg/kg/day. Further work is planned to look at the results of hearing tests. Until then we have decided not to measure gentamicin levels on babies who stop treatment after 48 hours as this would not alter dose or dosing schedule and we are not requesting audiology tests in this group of babies unless they have a 7-10 day course of gentamicin, have received two aminoglycosides or a diuretic and aminoglycoside.

We would be interested to know of others practice in this area and whether these data would influence them to change practice?

Yours faithfully

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References

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