

Audiology referral for high gentamicin levels during therapeutic monitoring in UHL Neonatal Units

Scope

This guideline is aimed at all Health care professionals involved in the care of infants within the Neonatal Service.

Related UHL documents:

- [Antibiotics for Neonatal Infection UHL Neonatal Guideline](#) UHL ref: C38/2015
- [Antibiotics for Surgical Prophylaxis or Infection UHL Neonatal Guideline](#) UHL ref: C29/2015
- Gentamicin : Procedure for routine intravenous administration
- Gentamicin Therapeutic drug monitoring
- Prescription chart for: IV gentamicin only

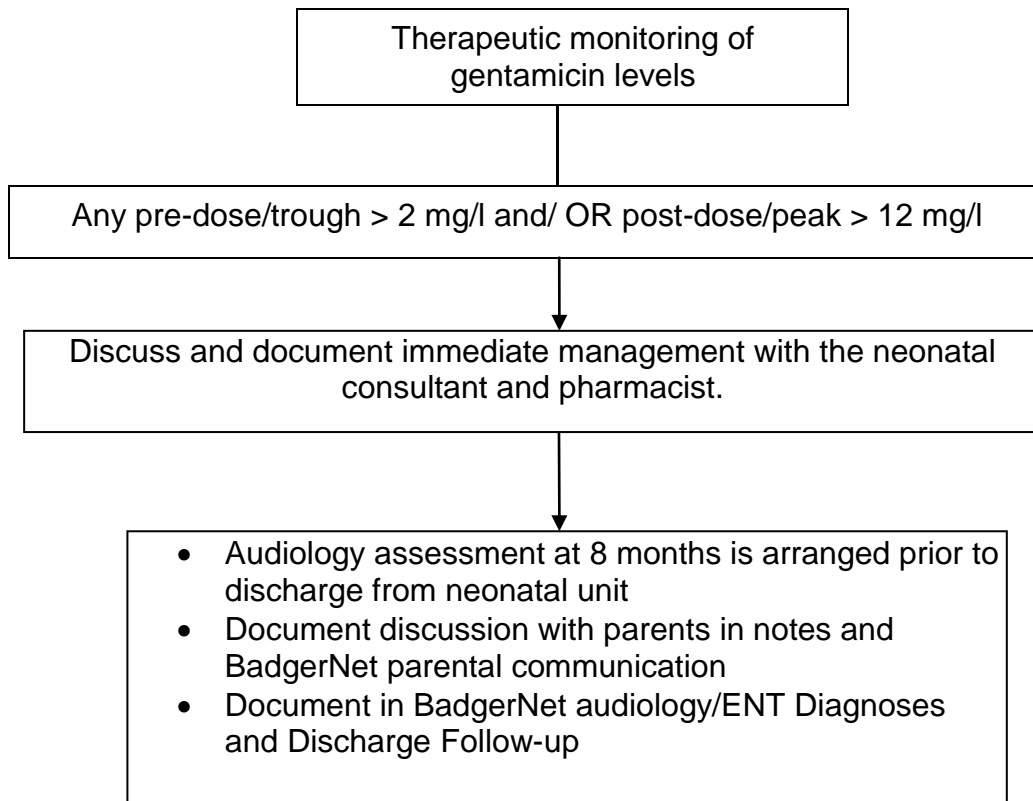
Key Points:

1. During routine therapeutic drug monitoring of gentamicin:
 - The target trough level is <2 mg/L if taken before the 2nd or 3rd dose and <1mg/L if taken before the 4th dose and onwards.
 - The target peak level is 6-12 mg/L (>8mg/L if Gram –ve sepsis or Staph infection)
2. Audiology assessment at 8 months is arranged for infants identified to have high gentamicin levels (Trough/pre-dose greater than 2mg/l and/or peak/post-dose greater than 12 mg/l)

Background

There is good evidence that aminoglycosides are associated with cochlear ototoxicity [1] especially when used in conjunction with furosemide. In general hearing loss attributable to ototoxicity is likely to be mild and in the higher frequencies and this is more accurately assessed by frequency-specific behavioural testing around 8 months [2]. Newborn Hearing Screening Programme recommend babies with high levels of ototoxic drugs (outside the therapeutic range) should be referred for audiological assessment around 8 months or sooner irrespective of newborn hearing screen outcome [2].

Flowchart for audiology referral pathway due to high gentamicin level



3. Education and Training

None

4. Audit standard

Audiology referral at 8 months is sought for infants identified to have high gentamicin levels (Trough/pre-dose greater than 2mg/l and/or peak/post-dose greater than 12mg/l) during routine therapeutic drug monitoring.

5. Supporting References

1. Lerner SA, Schmitt BA, Seligsohn R and Matz GJ. Comparative study of ototoxicity and nephrotoxicity in patients randomly assigned to treatment with amikacin or gentamicin. Am J Med. 1986; 80: 98-104
2. NHS Newborn Hearing Screen Programme (NHSP) Wood, S et al. Neonatal hearing screening and assessment, Protocol for the distraction test of hearing. MRC Institute of hearing research.2003.
3. Darnell A et al. A study of hearing levels in babies with raised gentamicin levels in the neonatal period and the development of new referral criteria. NHS University Hospitals of Leicester, Hearing Services Department and Department of Neonatology. 2011.
4. <https://www.gov.uk/government/publications/newborn-hearing-screening-care-pathways/newborn-hearing-screening-programme-nhsp-care-pathways-for-babies-in-neonatal-intensive-care-units-nicu> (accessed May 2022)

6. Key Words

Aminoglycosides, Cochlear ototoxicity, Hearing loss

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.
As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

CONTACT AND REVIEW DETAILS			
Guideline Lead (Name and Title) Vankatesh Kairamkonda – Consultant S Mittal – Consultant guidelines lead		Executive Lead Chief Medical Officer	
Details of Changes made during review:			
Date	Issue Number	Reviewed By	Description Of Changes (If Any)
2014 - 2015		Neonatal Guidelines Meeting	new guideline
2017			Evidence regarding need for audiology assessment re-evaluated
May 2019		Neonatal Guidelines Neonatal Governance	
May 2022		Neonatal Guidelines Neonatal Governance	No change