



OTOTOXICITY

Episode 22.1

DEFINITION

- Defined as >10 dB bilateral sensorineural hearing loss. In practice, ~20 dB loss in 2 consecutive frequencies with history of ototoxic medication use



SYMPTOMS

- Tinnitus (sentinel sign)
- Bilateral & symmetrical hearing loss (unilaterality does NOT r/o ototoxicity)
- Vertigo / dysequilibrium

RISK FACTORS

- Renal / hepatic failure
- Immunocompromise
- Advanced age
- Prior ototoxicity
- Concurrent ototoxic medication use
- Pre-existing SNHL

AMINOGLYCOSIDES

- **Gentamycin, streptomycin, tobramycin, neomycin**
- Auditory toxicity 20% / Vestibular toxicity 15%
- Causes damage to inner and outer hair cells
- Monitor peak and trough levels; renal function twice weekly
- Pretreatment audiogram in high risk patients

MACROLIDES

- **Erythromycin, azithromycin**
- Blowing tinnitus; associated CNS symptoms
- Reversible in most cases
- Mechanism of injury is not clear
- Pretreatment audiograms in high risk patients



ANTI-NEOPLASTICS

- **Cisplatin, carboplatin**
- Causes permanent damage to inner and outer hair cells
- Dose related damage. Auditory toxicity 7%
- Baseline audiogram



DIURETICS

- **Furosemide, ethacrynic acid**
- Auditory toxicity 6%. Reversible in most cases
- Non-loop diuretics do not have similar ototoxic effects

OTOTOPICALS

- **Antibiotics, antiseptics, anti-inflammatory drops**
- Most harmful is gentamycin or neomycin. Cases of both vestibular and auditory losses
- Principles of treatment: a) avoid prolonged use, b) avoid use in healthy ears, c) avoid if perforated TM, and d) be cautious if patient has baseline contralateral vestibular deficit