

- Once-daily dosing of aminoglycosides is efficacious, cheaper and less likely to cause nephrotoxicity than their administration in divided daily doses.
- Once-daily dosing is recommended except in the following situations:
 - (i) in patients with unconventional kinetics (eg patients with burns and others with large volumes of distribution), where there is insufficient evidence to justify change to a once-daily dose.
 - (ii) Although published evidence is limited, once-daily dosing of aminoglycosides is being used with increasing frequency in pregnancy for chorioamnionitis and the initial treatment of pyelonephritis
 - (iii) in severely impaired renal function, where the optimal dosing strategy is not clearly established
 - (iv) for synergistic effect when given with cell-wall active agents (eg penicillins, vancomycin) to treat serious streptococcal, enterococcal and staphylococcal disease (eg endocarditis, osteomyelitis).

dosing

aminoglycosides

general

- Aminoglycosides are among the most rapidly bactericidal drugs available for treatment of aerobic Gram-negative sepsis.
- All aminoglycosides are potentially ototoxic and nephrotoxic.
- Renal function, auditory and vestibular function, and therapeutic drug levels should be monitored
- Clinically significant adverse effects are more likely in patients of advanced age, and those with renal impairment, hearing loss or vestibular impairment.

specific agents

- Gentamicin has a broad Gram-negative spectrum, including Pseudomonas aeruginosa. Where approximately 95% or more of aerobic Gram-negative isolates remain susceptible to gentamicin, it is the aminoglycoside of choice.
- Tobramycin is marginally more active in vitro than gentamicin against Pseudomonas aeruginosa but not other aerobic Gram-negative bacteria, and is inactivated by a similar range of modifying enzymes to gentamicin.
- Amikacin is the aminoglycoside most resistant to enzymatic inactivation. It must be reserved for treating infections due to microorganisms that are resistant to other aminoglycosides. Amikacin is considerably more expensive than other aminoglycosides.