Background

- Daily practice: target concentrations of vancomycin are hard to reach
- Recently a GFR model for vancomycin was described in children [1]

Objectives

- Evaluation of vancomycin exposure in children upon several dosing regimens
- Development of a model-based dosing regimen

Methods

- Simulation of concentrations-time profiles for ten representative children on the basis of:

$$ CL_c = CL_p \times \left( \frac{cBW}{4000g} \right) $$

$$ V_{\text{central},t} = V_{\text{central},p} \times \left( \frac{cBW}{4000g} \right)^k$$

- Simulated dosing guidelines:
  - Kinderformulium
  - BNFc
  - IDSA

- Targets:
  - $C_{\text{trough}}$ (intermittent dosing): 10-15 mg/L
  - $C_{ss}$ (continuous dosing): 15-25 mg/L
  - $AUC_{24h}/MIC>400$

Results

- Steady state concentrations were reached between 31 and 53 hours for respectively children aged >1 year and a 1 month old child

Discussion

- The proposed dosing algorithm leads to comparable vancomycin exposure in children with age varying between 1 month and 18 years

References


Conflicts of interests: none