**Background and importance**

Due to the increase of multidrug-resistant Gram-negative bacteria, aminoglycoside therapy is frequently essential, and its management is especially problematic in dialysis patients.

**Aim and objective**

To calculate the mean gentamicin dose required to optimise pharmacokinetic/pharmacodynamic (PK/PD) parameters in intermittent haemodialysis patients to determine an initial dosing protocol.

**Material and methods**

Retrospective observational study (January 2009-April 2020), including patients treated with gentamicin on a 4-hour haemodialysis programme 3 times per week. Gentamicin concentration was analysed by chemiluminescence (CMIA). The estimation of kinetic parameters was performed by Bayesian methods with a single-compartment population model implemented in the Abbottbase-Pharmacokinetic System. Dialysis was introduced into the model as a disposition factor that increases drug clearance only during the 4 hours of dialysis. Data were evaluated using chi-square test. Significance was designated at p<0.05.

**Results**

- Population: 19 patients
- Median age: 66 (45-80) years
- Median weight: 67.89 (44-89) Kg
- Haematocrit: 29.6% (22-38%)
- Dialysers: 9 FX80, 7 FX10, 3 other dialysers
- Mean Filtration Rate: 2200ml/h
- Treatment duration: 17 (4-47) days
- Initial mean dose: $2.35 \pm 0.52$ mg/kg
- $V_d$: $0.33 \pm 0.1$ L/kg
- $t_{1/2}$: $33.65 \pm 17.29$ h

**Conclusions**

To optimise the PK/PD parameters of gentamicin in patients undergoing haemodialysis, an initial dose of **2.5 mg/kg one hour pre-dialysis** is proposed, without the need for loading doses.

**Reference**
