UNIVERSITI TEKNOLOGI MARA

PHARMACOKINETICS OF GENTAMICIN IN PEDIATRICS HOSPITALIZED PATIENTS

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ABSTRACT

The purpose of this study was to study the effectiveness of pharmacokinetics monitoring and to establish a population pharmacokinetics in pediatric hospitalized patients. The data comprise of 34 patients; 23 of male patients and 11 of female patients. The TDM data that had been collected from these patients is 71 data. The patients had been divided into 3 group according to their age which is group 1 (6 months to 2 years), group 2 (2 years t0 5 years) and group 3 (5 years to 12 years). The patient parameters including body weight, gender, age, creatinine clearance (ClCr) and serum electrolytes were analyzed to identify their potential influences on gentamicin pharmacokinetics. The data was best described with a one-compartment model. The data analysis showed that there is a strong relationship between *Ke* and volume of distribution (Vd) with R^2 value of 0.98, weight and clearance with R2 value of 0.99, and relationship between creatinine clearance (CrCl) and clearance of drug with R2 value is 0.917. The mean of *Ke*, *t1/2* and *Vd* in this study, were 0.18 hour-1, 4.31 hour and 0.54 L respectively. This analysis indicates that this population has a wide inter-patient variability and it necessitate the practice of routine therapeutic drug monitoring to ensure minimal adverse effect and maximum therapeutic effect to the patients.