

Demographic and Clinical Characteristics in Pediatric and Neonatal Patients with Elevated Trough Gentamicin Level in Sabah Women and Children Hospital

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Abstract: Gentamicin, an aminoglycoside antibiotic, remains an effective treatment for pneumonia, urinary tract infection, and neonatal sepsis empirically in pediatric practice. The pediatric guidelines recommended the gentamicin dosage regimen to be 4-7mg/kg in an extended interval of every 24 hours or 36 hours based on the subjects' gestational age to reduce the risk of gentamicin accumulation resulting in nephrotoxicity. This study aimed to describe the demographic and clinical characteristics of pediatric patients who were 2 years old and below who were at risk of gentamicin-related nephrotoxicity. This was a descriptive study conducted on all under 2-year-old pediatric patients who were on 5mg/kg gentamicin extended interval regimens, had elevated blood gentamicin trough levels of above 1.0mg/L after 2 doses, and were at risk of nephrotoxicity. The subjects were categorized into 2 groups: the 24-hourly group and the 36-hourly group. The data on the demography, medication history, and blood investigation results were collected and analyzed. Out of the total 46 subjects who had elevated blood gentamicin trough levels, there were 32 (69.6%) subjects in the 24-hourly group and 14 (30.4%) in the 36-hourly group. 21 out of 32 subjects in the 24-hourly group were term babies whereas, all subjects in the 36-hourly group were preterm babies. Of all the 46 cases, gentamicin was served during the babies' first week of life in 31 cases, and after the babies' first week of life in 15 cases with 1 case of gentamicin being served to infants of 1 month old and above. It appeared that the incidence of gentamicin-related nephrotoxicity was slightly lower in the 36-hourly group than in the 24-hourly group. It is recommended to use the 5mg/kg 36 hourly regimens for neonates in their first week of life when indicated. Future study directions could focus on determining the risk factors for gentamicin-related nephrotoxicity among pediatric patients.

Keywords: elevated gentamicin trough, neonates, pediatric