

Attainment of Therapeutic Vancomycin Trough Serum Concentrations with Empiric Dosing in neonatal intensive care unit patients

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ABSTRACT

Introduction: Vancomycin is commonly used to treat neonatal late-onset sepsis. However, data for dosing and monitoring of vancomycin in Malaysian neonatal population is lacking. This study aimed to assess the percentage of neonates achieving a serum trough concentration between 10 to 20 mcg/mL with empiric vancomycin dosing. **Methods:** A retrospective cross-sectional study was conducted to review therapeutic drug monitoring serum trough levels among Neonatal Intensive Care Unit (NICU) patients in Kajang Hospital, Malaysia who received at least three doses of intravenous vancomycin therapy from January 2013 to December 2018. The percentage of neonates achieving sub-therapeutic, therapeutic and supra-therapeutic trough levels were compared. **Results:** Of the 51 patients included, the mean gestational age was 31.8 weeks whereas the mean postmenstrual age was 35.3 weeks. Preterm neonates comprised the majority of the sample (82.4%). On average, patients were started on vancomycin therapy at a postnatal age of 24.1 days and weight of 1922.5 grams, and received vancomycin for 6.7 days. 41.2% achieved a goal trough of 10 to 20 mcg/mL. 21.6% of trough concentrations were sub-therapeutic whereas 37.3% were supra-therapeutic. Supra-therapeutic trough concentrations were more often observed in the preterm group compared to term neonates (45.2% vs 0%, $p < 0.05$). Only 1 neonate experienced nephrotoxicity (defined as a doubling of serum creatinine from baseline). **Conclusion:** The current vancomycin dosing regimens used in NICU patients yielded 41.2% of therapeutic trough concentrations. Preterm neonates experienced higher occurrence of supra-therapeutic trough levels. Further studies are required to evaluate the optimal dosing regimen to achieve therapeutic trough concentrations in this patient population.

Prevalence of White Coat Effect in Patients with Pseudo-resistant Hypertension

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ABSTRACT

Introduction: The prevalence of white coat effect (WCE) in patients with pseudo-resistant hypertension is not established locally. WCE may result in unwarranted intensification of therapy, leading to increased health costs, drug adverse effects, and decreased adherence to prescribed treatment. Therefore, the primary objective is to determine the prevalence of WCE among patients with pseudo-resistant hypertension in Malaysia. **Methods:** Patients suspected of pseudo-resistant hypertension on at least 3 anti-hypertensive drugs were recruited. Office blood pressure (BP) were repeated before being reassessed with a 24-hour ambulatory blood pressure monitoring (ABPM). Patients with an elevated office BP of >20/10 mmHg in contradictory to 24-hour BP of <130/80 mmHg were formally diagnosed as controlled hypertension with white coat effect. **Results:** Of the 430 patients screened, 413 with valid ABPM were analysed. Of which, 224 had controlled hypertension. Of which, 133 (59.4%) had WCE. Their mean age was 54.38 ± 8.1 , predominantly females (70.7%), Malays (39.8%) with underlying type 2 diabetes mellitus (75.9%), dyslipidaemia (88.7%), chronic kidney disease (58.6%) and Body Mass Index of 30.8 ± 5.6 . Echocardiogram showed 34.8% with concentric left ventricular hypertrophy. Baseline office BP was $146.7 \pm 14.3/78.14 \pm 10.8$ mmHg. In contrast, 24-hour BP was $115.01 \pm 7.5/69.73 \pm 5.7$ mmHg, and the majority were non-dippers (62.4%). In all 97.7% were compliant to medication while taking 3.9 ± 0.8 number of anti-hypertensive medications. **Conclusion:** WCE is prevalent in patients with pseudo-resistant hypertension (32.2%), similar to studies published on other populations. Therefore, identifying WCE in pseudo-resistant hypertension is important to prevent over-treatment. Hence, 24-hour ABPM is recommended to ascertain WCE and guide further management.