

Early hospital discharge and unplanned hospital readmission following discharge among general paediatric patients in a children's hospital

Chua Ker Yang, MPAEDS (UM)³, Fatimah Az Zaharah Binti Suhaimi, MBBS (MSU)², Karuthan Chinna, PhD (MMU)², Shamsul Anuar B Kamarudin, MBChB (Otago)¹, Muhammad Kasyful Azim B Yahya, MHA (University of The Philippines)¹, Sabeera Begum Kadir Ibrahim, MPAEDS (UM)³, Asiah Kassim, MPAEDS (Mal)^{2,3}

¹Directors Office, Hospital Tunku Azizah, Kuala Lumpur, ²Clinical Research Centre, Hospital Tunku Azizah, Kuala Lumpur, ³Paediatric Department, Hospital Tunku Azizah, Kuala Lumpur

ABSTRACT

Introduction: Early hospital discharge and unplanned hospital readmission rate is one of the key service performance indicators measuring the quality of care in paediatric healthcare settings. We aim to explore the relationship between early discharge and readmission and their associated factors. **Materials and Methods:** Data were collected retrospectively from Hospital Information System (HIS) between 1st May 2019 to 29th February 2020. Subjects discharged within 24 hours of hospital admission were studied. Unplanned hospital readmission defined as readmission within up to 28 days according to British studies. **Results:** During study period, there were a total of 7198 admissions out of which 875(12.2%) were discharged within 24 hours. The median age was 29 months (1, 213); 207(23.7%) under 12 months, 408(46.6 %) were between 2 to 5 years, and 260(29.7 %) were above 5 years. Among patients who were discharge within 24 hours, 336(47.1%) had respiratory illnesses; 246(34.6%) infectious and 89(12.5%) were non-infectious. Among those discharged early, 836(95.5%) did not readmitted within 28 days. There were 34 unplanned readmissions; 4(11.8%) were readmitted within 48 hours, 5(14.7%) within 3-7 days, 10(29.4 %) within 8-14 days and 15(44.1%) within 15-28 days. Factors associated with unplanned readmission were chronic conditions 20(58.8%, $p=0.034$) and recurrent hospitalization 24(70.5%, $p=0.003$). Chronic conditions include Down syndrome and Global Developmental Delay. Out of 34, unplanned readmissions, 21(84%) had recurrent hospitalisation. **Conclusion:** It is important for admitting personnel to reassess the necessity of hospital admissions to avoid unnecessary readmission. Optimal disease control will help to prevent hospital admission among children with chronic illnesses.

Keywords: Early hospital discharge, hospital readmission, recurrent hospitalisation

Evaluation on the optimal vancomycin therapeutic drug monitoring using area under the curve against trough method in the National Infectious Disease Centre, Malaysia

Adam Jafer, Dinesh Widhiadharan, Swea Yan Phung, Syamhanin Adnan

Pharmacy Department, Hospital Sungai Buloh

ABSTRACT

Introduction: Traditionally, vancomycin troughs of 15-20 mg/L were used as surrogate for area under the curve to minimum inhibitory concentration ratio (AUC/MIC) > 400 mg.h/L. However, trough of ≥ 15 mg/L is associated with increased risk to acute kidney injury (AKI). Therefore, the new guideline advocates target of AUC/MICBMD ratio of 400 to 600. Our institution led the transition from trough to AUC guided monitoring for all Ministry of Health hospitals in Malaysia. We assessed vancomycin exposures, time-to-therapeutic range and AKI incidence in these two periods. **Materials and Methods:** A single-center, retrospective pre & post study was performed on adult inpatients with MRSA infection and treated with intravenous vancomycin of at least 3 consecutive doses. The study period was from May 2018 till May 2020. **Results:** A total of 37 patients (16 in AUC and 21 in trough period) were included. Bloodstream infection was the most common with 15 (31%) patients. Median creatinine clearance at baseline was comparable in both periods (100 mL/min in AUC versus 127 mL/min in trough period, $p>0.05$). Patients in the AUC period had lower vancomycin exposures (average total daily dose 1.9 g in AUC vs. 2.25 g in trough period, $p<0.01$). There was no significant difference in the time-to-therapeutic range between the two periods, median of 5 days in AUC versus 8 days in trough ($p=0.053$). There was no AKI developed during AUC however 14.3% AKI incident during trough period. **Conclusion:** Transition to AUC-based monitoring resulted in significantly lower vancomycin exposures with zero incidence of AKI.

Keywords: Vancomycin, AUC, trough, TDM, nephrotoxicity, acute kidney injury