

## **Colistin-associated nephrotoxicity among patients in intensive care units (ICU) of hospitals in Selangor**

### **ABSTRACT**

**Introduction:** The increasing trend of extensively drugresistant gram negative bacteria responsible for nosocomial infections has prompted resurgence colistin usage. Colistin-induced nephrotoxicity is a concern with disparity in the reported rates between previous studies. This study aims to evaluate colistin-induced nephrotoxicity among Malaysian population.

**Methods:** The medical records of ICU patients receiving colistin therapy in Hospital Serdang and Hospital Sungai Buloh from 2010 to 2012 were retrospectively reviewed. Demographics data, treatment characteristic as well as culture result and creatinine level were documented. Nephrotoxicity was determined based on RIFLE criteria.

**Results:** A total of 100 patients were included. Median daily dose, cumulative dose and duration of colistin therapy were 3.0 MIU (IQR: 4, range 1-12), 17.8 MIU (IQR: 31.5, range 2-180) and seven days (IQR: 4, range 1-30). Nephrotoxicity was found in 23% of the study population. All cases were reversible but marginally associated with higher mortality. No statistical association exist between age, gender and race as well as administration routes with nephrotoxicity by univariable analysis. The association of dose and duration with nephrotoxicity was also not significant by univariable analysis. After adjustment for confounders, statistical association between the independent variables and dependent variable remains not significant.

**Conclusion:** Lower dose and shorter duration in local settings contribute to lack of association between colistin therapy and nephrotoxicity in this study. Higher dosing regimen with loading dose application has been introduced in the latest National Antibiotic Guideline. Further evaluation of colistin-induced nephrotoxicity and potential risk factors is therefore warranted.

**Keyword:** Acinetobacter baumannii; Acute kidney injury; Colistin; Intensive care units; Retrospective studies