

Carbapenem Usage in Medical Wards: An Antibiotic Stewardship Feedback Project

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Abstract : Background: Carbapenem-resistant isolates have been increasingly reported recently. Carbapenem stewardship is designed to optimize its usage particularly among medical wards with high prevalence of carbapenem prescriptions to combat such emerging resistance. Carbapenem stewardship programmes (CSP) can reduce antibiotic use but clinical outcome of such measures needs further evaluation. We examined this in a prospective manner using feedback mechanism. Methods: Our single-center prospective cohort study involved all carbapenem prescriptions across the medical wards (including medical patients admitted to intensive care unit) in a tertiary university hospital setting. The impact of such stewardship was analysed according to the accepted and the rejected groups. The primary endpoint was safety. Safety measure applied in this study was the death at 1 month. Secondary endpoints included length of hospitalisation and readmission. Results: Over the 19 months' period, input from 144 carbapenem prescriptions was analysed on the basis of acceptance of our CSP recommendations on the use of carbapenems. Recommendations made were as follows : de-escalation of carbapenem; stopping the carbapenem; use for a short duration of 5-7 days; required prolonged duration in the case of carbapenem-sensitive Extended Spectrum Beta-Lactamases bacteremia; dose adjustment; and surgical intervention for removal of septic foci. De-escalation, shorten duration of carbapenem and carbapenem cessation comprised 79% of the recommendations. Acceptance rate was 57%. Those who accepted CSP recommendations had no increase in mortality ($p = 0.92$), had a shorter length of hospital stay (LOS) and had cost-saving. Infection-related deaths were found to be higher among those in the rejected group. Moreover, three rejected cases (6%) among all non-indicated cases ($n = 50$) were found to have developed carbapenem-resistant isolates. Lastly, Pitt's bacteremia score appeared to be a key element affecting the carbapenem prescription's behaviour in this trial. Conclusions: Carbapenem stewardship program in the medical wards not only saves money, but most importantly it is safe and does not harm the patients with added benefits of reducing the length of hospital stay. However, more time is needed to engage the primary clinical teams by formal clinical presentation and immediate personal feedback by senior Infectious Disease (ID) personnel to increase its acceptance.

Keywords : audit and feedback, carbapenem stewardship, medical wards, university hospital

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