Utilization of Colistin in a Tertiary Care Hospital: A Prospective Observational Study

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Excessive and inappropriate use of antibiotics cause significant morbidity and mortality, toxicity, long hospitalization period, increase in costs and resistant microorganisms.1,2 This prospect has resulted in a new focus on making the best use of older antibiotics like colistin to maximize its clinical impact and longevity. This study was carried out to report our experience with the utilization of colistin in a tertiary care hospital.

From June to December we reviewed utilization of colistin in a tertiary care hospital. A standardized case report form was used to record patient data including age, sex, diagnosis, site of infection, condition treated, past medication history, co morbidity, medications, culture sensitivity reports.

Patients were categorized into three groups.

1. Empiric: treatment started upfront with colistin
2. Escalation: treatment started with antibiotics other than colistin and then escalated to colistin due to lack of response
3. Post microbiology: treatment with colistin initiated in response to positive microbiology results demonstrating resistant gram negative bacteria

Scope for de-escalation was determined. Patients prescribed colistin in other hospital and then transferred to Hinduja Hospital were excluded.

102 patients on colistin therapy were recruited in the study. Among them, 64 (62.8%) patients were admitted in the ICU whereas 38 (37.3%) patients were admitted on the floors. 72 (70.6%) had co-morbidities such as chronic lung disease, malignancy, hypertension, diabetes and tuberculosis. The most common organism isolated was Pseudomonas aeruginosa in 31 (29.8 %) patients, followed by Acinetobacter species in 14 (13.5 %) patients, E. coli was isolated from 9 (8.7 %) patients and Klebsiella species were isolated in 11 (10.6%). More than one microorganism (polymicrobial) was seen in 10 (9.6%) patients.

In 25 (24%) patients culture showed no growth. 1 patient was started on empiric colistin treatment. Escalation to colistin was done in 66 patients (63.5 %). Post microbiology treatment with colistin was started in 13 patients (12.5%) (Table 1).

Among these groups, scope of de-escalation was discussed with the infectious diseases team in the hospital. There was a scope for de-escalation in 12 patients out of which 6 patients were successfully deescalated. All were from the escalation group. De-escalated patients showed 100% survival rate.

Discussion

It was felt that colistin was judiciously used in the hospital. Patients were not started on empiric treatment with colistin (except for one patient who was extremely unwell with an APACHE II score of 44). Most patients were initially started on other antibiotics and escalated to colistin when there was no response to initial therapy. Other patients were started on colistin therapy when microbiology results demonstrated resistant organisms requiring colistin.

Audits such as these help monitor the use of high end antibiotics in the hospitals. Clinical pharmacists can play a vital role in the hospital for gathering clinical as well as consumption data for antimicrobial surveillance.

References
