

Allied Health Category

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00230

Empiric Meropenem versus Ceftazidime for Severe Community-Acquired Pneumonia (SCAP)

Nathalie Grace Sy Chua, Winnie Lee Hui Ling, Liew Yixin, Sarah Tang Si Lin, Yvonne Zhou Pei Jun, Karishma Patel, Maciej Piotr Chlebicki, Andrea Kwa Lay Hoon

Singapore General Hospital

Aims: SCAP is associated with 67% mortality in Singapore. The most optimal regimen for SCAP is not established. Locally, ceftazidime or meropenem is preferred for melioidosis cover. We compare the outcomes between these 2 regimens.

Methodology: A single centre, retrospective cohort study was performed from Jan 11 to Apr 15 on patients (18 years and above) with SCAP, requiring intensive care unit (ICU) admission and mechanical ventilation within 48 hours of admission. Demographics, clinical, microbiological and antibiotic use data were collected. Primary outcome was 30-day overall mortality (OM). Secondary outcomes were CAP-related mortality (CM) and clinical response. Chi-Square, Fisher's Exact, Mann Whitney U, log-rank tests, Kaplan-Meier survival analysis and multivariate Cox regression were employed.

Result: Fifty-nine patients received ceftazidime while 41 received meropenem; median age was 64 (IQR 56-75) and 62 years (IQR 54-74) respectively. Age, gender, Charlson comorbidity index, APACHE II score, CURB-65 score and pneumonia severity index were similar for both groups. Ceftazidime was mostly paired with fluoroquinolones (88%) while meropenem was paired with azithromycin (73%). Thirty-day OM was 63% and 29% for ceftazidime and meropenem groups respectively ($p=0.001$) while 30-day CM was 34% and 22% respectively ($p=0.195$). Median time to OM was 7 and >30 days ($p<0.001$) respectively while median time to CM was not significantly different ($p=0.071$). After adjusting for confounders, age and immunocompromised state, ceftazidime had greater OM – hazards ratio, HR 3.0 (95% CI: 1.5–5.8). After adjusting for concurrent bacteremia, ceftazidime had greater CM –HR 2.5 (95% CI: 1.1–5.7). More patients on meropenem had antibiotic de-escalation after a median of 3 days (68% vs 32%, $p<0.001$) and recovered at end of therapy (59% vs 29%, $p=0.003$).

Conclusion: Empiric meropenem-based regimen may be more effective than ceftazidime-based regimen in reducing early mortality in SCAP. Antibiotic de-escalation after 3 days can be considered if adequate response is observed.