An Audit on the CASC study:

Challenges of and opportunities for Carbapenem-sparing Antimicrobial Stewardship(AMS) Interventions in the real-world Clinical setting (CASC Study)

A focus on Meropenem Courses Started Without pre-Authorization in a single tertiary center

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Background:

Meropenem is a restricted antimicrobial. Pre-authorisation and prospective review of meropenem prescription are undertaken at our institution as standard of care. A multidisciplinary AMS team, which includes infectious diseases specialists, clinic microbiology and hospital pharmacists determine if prescription is appropriate or inappropriate based on clinical scenario, microbiological isolates and local treatment guidelines.
The aim of this study was to review clinical characteristics and indication for meropenem courses prescribed. Where Meropenem prescription was not pre-authorised, we reviewed appropriateness of prescription and acceptance of AMS team recommendations.

Methods:

Meropenem prescriptions from the time-period January to December 2022 were retrospectively reviewed in a 1000 bed, tertiary referral university hospital. Patient demographics, clinical indication, microbiological isolates and 30-day mortality was reviewed. The study was approved by the Cork Clinical Research Ethics Committee

Results:

During the study period, 676 meropenem prescriptions were reviewed in 527 patients (mean age 64 years [SD 16.6], 62.6% male). Source of infection was recorded as respiratory in 48%, urinary in 8.6% and intra-abdominal in 6.8% (Table 1). Meropenem was prescribed as initial choice in 82%(n=552). Prescription was empiric in 62%(n=326). 76.1%(n=512) of patients were under medical specialties .

Meropenem prescription which were not pre-authorised in 78 (11.5%) patients (median age was 76 years (range 31-92), 54% male); most of these patients (75%, n=58) were under the care of medical teams. Documented source of infection was respiratory (46%), urinary (21%), intra-abdominal (10%) and skin/soft tissue (5.1%), with no identified source of infection in 7.7% of patients. Meropenem was prescribed empirically in 73%(n=57) and 42%(n=33) received meropenem as their initial antibiotic. Median duration of treatment was 7 days(range 1-26). Overall 30-day mortality rate was 29 %.

Multi-drug resistant organisms (including ESBL producers) were found in 23 %. Meropenem prescription was determined to be appropriate in 38%(n=30), inappropriate in 46%(n=36) and unknown in 15%(n=12). A recommendation to stop or de-escalate antibiotics was made in 41(53%). Acceptance of recommendation to stop or de-escalate occurred in 28 of the 41 patients (68%).

Conclusion:

Most cases of non-authorised meropenem prescription were inappropriate. Acceptance of recommendations to stop or de-escalate antibiotics was low. Further research will focus on factors influencing acceptance of AMS interventions.