

Meropenem Review and De-escalation in GUH: How to come down!



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Background

- ❖ Usage of meropenem in our hospital has doubled over the past seven years from 1.99 DDDs in 2008 to 4.35 in 2014
 - ❖ This is an issue for hospitals in Ireland and throughout the world
- ❖ An audit in 2013 showed that although initiating therapy with meropenem was appropriate in the majority of cases, therapy was rarely subsequently reviewed and de-escalated where appropriate
- ❖ In response to the audit findings, targeted intervention through focused meropenem de-escalation was undertaken. Heretofore, literature is limited on the impact of meropenem review and de-escalation strategies

Aims

- ❖ Review patients on meropenem daily over a four week period and recommend stop, de-escalate or continue meropenem as appropriate
- ❖ Quantify and compare meropenem course lengths for patients where de-escalation advised vs continuation of meropenem advised



Methods

- ❖ A local Guideline for review and de-escalation of meropenem was developed, approved by the Antimicrobial Stewardship Team and piloted for four weeks by a consultant microbiologist and antimicrobial pharmacist
- ❖ Guideline criteria to be met prior to recommendation for meropenem de-escalation were:
 - Current diagnosis of infection, with a causative organism identified for which there is an appropriate alternative antibiotic or
 - Current diagnosis of infection suspected with no causative organism identified AND no organism isolated from any specimen in previous 12 months for which meropenem therapy specifically indicated, without suitable alternative

Methods

- ❖ Over a 4 week period, patients on meropenem were reviewed at or after 72 hours of therapy. Patient medical notes, drug charts, laboratory and radiology results were reviewed
- ❖ A written recommendation was made in patient medical notes to stop meropenem, de-escalate to a specified alternative antibiotic or continue meropenem
- ❖ Patient drug charts and medical notes were reviewed by the antimicrobial pharmacist 48 hours later to record if the recommendation had been followed. Total meropenem course lengths were recorded at end of therapy

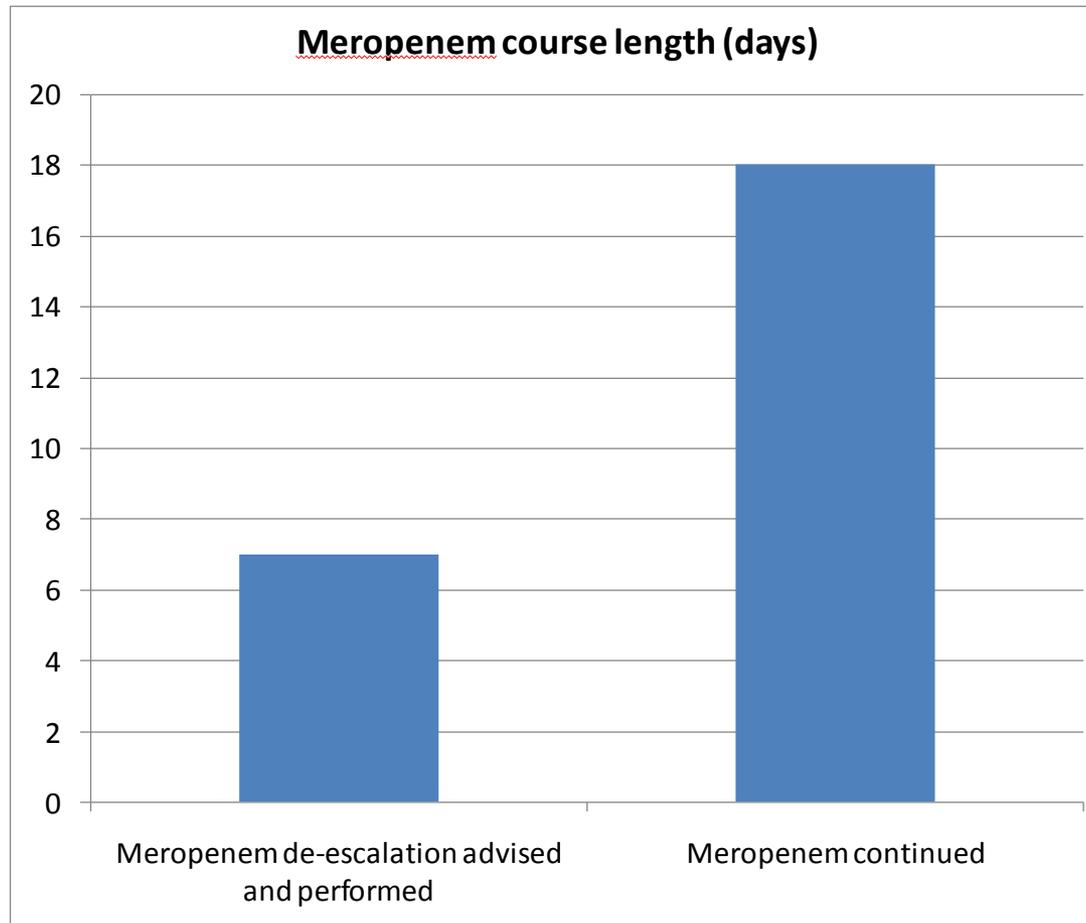
Results

- ❖ 33 patients were reviewed
- ❖ Advice from microbiology or infectious disease teams supporting initial meropenem use was documented in 26 (79%) of patients
- ❖ Meropenem use was empiric in 19 (58%) patients and culture directed in 14(42%)

Results

- ❖ Recommendation by the review team to de-escalate from meropenem to a specified alternative antibiotic was made for 18 (55%) patients.
- ❖ This advice was followed for 12 of the 18 patients (66%), representing 36% of all patients on meropenem.
- ❖ Mean duration of meropenem therapy 7 days (range 3-19) when de-escalation was performed vs mean duration 18 days (range 6-84) when meropenem was continued

Results



Results

- ❖ From the 19 patients where initial meropenem therapy was empiric, a recommendation to de-escalate was made for 16 (84%)
- ❖ From the 14 patients where initial meropenem therapy was culture directed, a recommendation to de-escalate was made for 2 (14%)

Results

Crude Mortality Rates

Meropenem continued	5/21 (24%)
Meropenem de-escalated	4/12 (33%)

Difference was not statistically significant (Fisher's Exact Test one-tailed $p= 0.421$ or 0.841)

Case notes of 4 deaths from de-escalated group reviewed. None attributable to infection. 2/4 palliative metastatic carcinoma, 1/4 intracerebral bleed, 1/4 end stage cardiac failure.

Conclusions

- ❖ Daily antimicrobial stewardship team review of patients on meropenem over 4 weeks resulted in de-escalating meropenem in 36% of patients
- ❖ Had the recommendation of the meropenem review team been followed in all cases it would have been possible to de-escalate from meropenem in 55% of patients
- ❖ Focused meropenem de-escalation in line with locally agreed de-escalation criteria is an effective and safe intervention in reducing unnecessary meropenem use

References

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Thank You

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