Effectiveness of temocillin use in a London district general hospital

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Background

Temocillin was recently introduced into the hospital formulary as a β-lactam antibiotic stable against most β-lactamases including ESBLs and dAmpCs and as a piperacillin-tazobactam and carbapenem sparing agent.

Aim

The aim of this study was to review the use of temocillin and clinical outcomes at Kingston Hospital Foundation Trust from October 2016 to March 2017.

Method

Using an electronic prescribing system, all patients prescribed temocillin during the 6 month period were reviewed retrospectively with regards to length of treatment, dose , culture results, complications and treatment outcome.

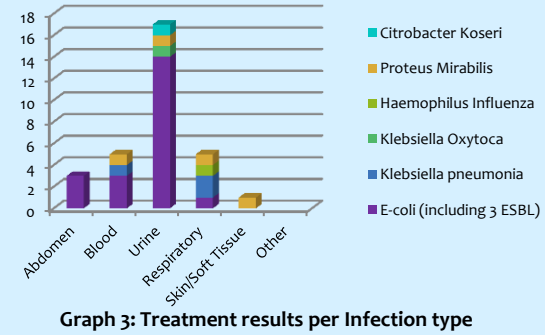
Results

Temocillin was prescribed 67 times to 66 patients; 36 females and 30 males. The age range was 20 to 98, while 55 of them (83%) were over 70 years old. Treatment courses ranged from 1 to 15 days, with a median of 5 days.

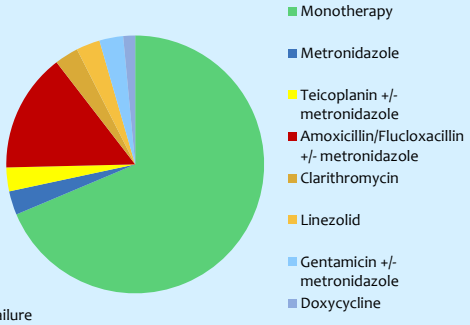
Six of the 7 patients who failed temocillin treatment were on a low dose (1g BD). Three of these were commenced empirically and subsequent cultures grew temocillin resistant organisms. This represents a failure rate of 10% empirically and 6% globally after cultures and sensitivities. Only one 90 year old patient developed *C.difficile* infection (CDI).

Of the patients treated solely with temocillin, 31 were being treated for urine related infections, 8 for sepsis related infections, 6 for respiratory related infections and 1 for cholecystitis.

Graph 1: Pathogens per infection type



Graph 2: Usage of temocillin as monotherapy and agents used in combination with temocillin



Graph 3: Treatment results per Infection type

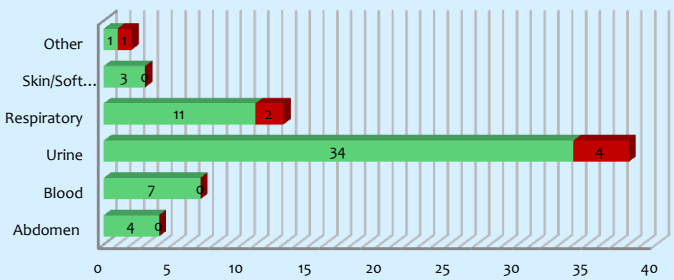


Table 1: Patient age, duration and empirical therapy vs microbiology driven therapy

Infection type	Median age	Cultures based	Empirical	Median duration
Intra-abdominal	82.5	3	1	5.5
Blood	86	5	2	5
Urine	86.5	14	24	5
Respiratory	86	3	10	5
SST	61	0	3	2
Other	90	0	2	4.5

Discussion

Of the 7 failed treatment episodes, 3 were switched to piperacillin-tazobactam and 4 switched to a carbapenem. All 4 patients who failed treatment without having temocillin resistance were found to have been on a suboptimal dose of 1g. The patient, who developed CDI, had a prolonged hospital stay, multiple co-morbidities and multiple courses of other antimicrobials all of which could have contributed to the CDI.

Conclusion

Temocillin is safe and effective to use not only when indicated by culture results but empirically too, and as a monotherapy or in combination when broad-spectrum cover is needed.

Given the percentage of failures caused by suboptimal dosing, we would aim to use the 2g BD dose when renal function allows and re-audit in 6 months.

References

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