

Review of carbapenemics de-escalation in extended-spectrum β -lactamases producing enterobacteriaceae urinary tract infections in clinical practice

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SUMMARY

The indiscriminate use of carbapenem antibiotics in urinary tract infections poses a risk of increasing antimicrobial resistance to them. The use of carbapenem antibiotics should be reserved for those urinary tract infections caused by extended-spectrum β -lactamases -producing Enterobacteriaceae. However, there is sufficient evidence of the possibility of using different therapeutic options to carbapenems in certain infec-

tions with extended-spectrum β -lactamases isolation and sensitivity data. Of the patients analysed in the study, those with urinary tract infection by extended-spectrum β -lactamases -producing Enterobacteriaceae treated with antibiotics other than carbapenemics based on susceptibility data, achieved resolution of infection in those cases where they were clinically well, so the use of these alternatives would be an appropriate optimisation and rational use of carbapenemic.

Key words: **Carbapenemic, ESBL, deescalation, UTI.**

Revisión de la desescalada de carbapenémicos en las infecciones del tracto urinario por enterobacterias productoras de betalactamasas

RESUMEN

El uso indiscriminado de antibióticos carbapenémicos en infecciones del tracto urinario supone un riesgo de aumento de la resistencia antimicrobiana a los mismos.

El uso de antibióticos carbapenémicos debe reservarse para aquellas infeccio-

nes del tracto urinario causadas por Enterobacterias productoras de betalactamasas de espectro extendido.

Sin embargo, existe evidencia suficiente de la posibilidad de utilizar opciones terapéuticas diferentes a los carbapenémicos en determinadas infecciones con datos de sensibilidad.

De los pacientes analizados en el estudio, aquellos con infección del tracto urinario por Enterobacterias productoras de betalactamasas de espectro extendido y tratados con antibióticos distintos a los carbapenémicos según datos de sensibilidad, consiguieron resolver la infección en aquellos casos en los que presentaban buen estado clínico por lo que el uso de estas alternativas supondría una adecuada optimización y uso racional de carbapenémicos.

Palabras clave: **Carbapenémicos, BLEE, desescalada, ITU.**

BACKGROUND AND IMPORTANCE

There is sufficient evidence of the possibility of using different therapeutic options to carbapenems in certain infections with extended-spectrum β -lactamases (ESBL) isolation and sensitivity data.

AIM AND OBJECTIVES

To describe the characteristics of patients with urinary tract infection (UTI) and isolation of BLEE microorganisms and their relationship with therapeutic de-escalation

MATERIAL AND METHODS

Retrospective and observational study in a tertiary level hospital, over a period of 14 months -June 2020 to September 2021-. All patients diagnosed with UTI due to ESBL producing enterobacteria (*Escherichia coli* and *Klebsiella pneumoniae*) were included. Data were obtained through digital medical records and electronic prescribing software and processed in Excel® version 2013. Demographic, clinical and treatment variables were collected. Data were expressed as means (SD) and median (IQR), according to whether the distribution was normal or not

RESULTS

A total of 30 patients - 60% male - were included, with a mean age of 77.2 (11.77). The clinical units of the patients were very varied with 23% being infectious diseases. Patients were grouped into: patients with de-escalation - 11 (30%) -

and patients with no carbapenem de-escalation - 19 (70%). The de-escalation options were: Piperacillin/Tazobactam (36.3%), Amoxicillin/Clavulanic acid (9.1%), Fosfomicin (45.5%) or Cotrimoxazole (9.1%). There were only 5 patients with sepsis according to quick Sequential Organ Failure Assessment (qSOFA) criteria. Regarding the Charlson Index, the median was 2 (3-1) for the non-de-escalation group and 1 (3-1) for the de-escalation group. In all cases, de-escalation was performed when the patient was clinically stable and after antibiogram sensitivity results. Four patients died during that episode and only one of them belonged to the de-escalation treatment group. All patients who died had a Charlson Index of 3 or more. The remaining patients (26) resolved the infection after treatment.

CONCLUSION AND RELEVANCE

The use of alternative antibiotics to carbapenemics may be safe for the treatment of UTIs in patients with ESBL producing Enterobacteriaceae, leading to savings in the use of carbapenemics and the consequent emergence of future resistance. However, it should be noted that the use of these alternatives should be used with caution and be individualised for patients with low Charlson Index and qSOFA

Conflict of interests: The authors declare that they do not present a conflict of interest.



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