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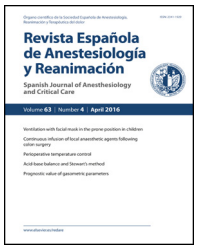

CASE REPORT

Ceftazidime-induced thrombocytopenia☆

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KEYWORDS
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Pharmacovigilance;
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Abstract Ceftazidime is an antibiotic belonging to the group of third generation cephalosporins, frequently used in clinical practice for its broad antibacterial spectrum. A case report is presented on a 78-year-old man who entered the intensive care unit due to respiratory failure secondary to nosocomial pneumonia in the postoperative period of a laparoscopic hepatic bisegmentectomy for a hepatocarcinoma. It required invasive mechanical ventilation and was treated with ceftazidime, developing a progressive decrease in platelet count after the onset of this drug and after re-exposure to it, not coinciding with the introduction of other drugs. The adverse reaction was reported to the Spanish pharmacosurveillance system and according to the Naranjo algorithm the causal relationship was probable. Since no case of ceftazidime-induced thrombocytopenia was found in the literature, we consider knowledge of it relevant as an adverse effect to be taken into account given its potential severity, especially when it cannot be explained by other causes.

PALABRAS CLAVE
Ceftazidima;
Trombocitopenia;
Discrasias sanguíneas;
Cefalosporinas;

Trombocitopenia inducida por ceftazidima

Resumen La ceftazidima es un antibiótico perteneciente al grupo de las cefalosporinas de tercera generación, de uso frecuente en la práctica clínica por su amplio espectro antibacteriano. Presentamos el caso de un varón de 78 años que ingresó en la unidad de cuidados intensivos por una insuficiencia respiratoria secundaria a una neumonía nosocomial en el postoperatorio

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Farmacovigilancia; Efectos colaterales y reacciones adversas relacionados con medicamentos

de una bisegmentectomía hepática laparoscópica por un hepatocarcinoma. Precisó ventilación mecánica invasiva, y se trató con ceftazidima, desarrollando un descenso progresivo en la cifra de plaquetas tras el comienzo de este fármaco y tras la reexposición al mismo, no coincidiendo temporalmente con la introducción de otros fármacos. La reacción adversa fue comunicada al Sistema Español de Farmacovigilancia y según el algoritmo de Naranjo la relación de causalidad fue probable. Puesto que no se ha encontrado descrito en la literatura ningún caso de trombocitopenia inducida por ceftazidima se considera relevante su conocimiento para que sea una reacción adversa a tener en cuenta dada su potencial gravedad, especialmente cuando no sea explicable por otras causas.

Introduction

Ceftazidime is a third generation cephalosporin that, because of its broad antibacterial spectrum, is frequently used in clinical practice to treat a variety of infections. Haematologic adverse drug reactions (ADR) are not a characteristic of ceftazidime, and the summary of product characteristics indicates that thrombocytopaenia is an uncommon ADR described in less than 1% of patients in clinical trials.[1]

Case report

We present the case of a 78-year-old man admitted to the Intensive Care Unit of the Anaesthesiology and Resuscitation Service for respiratory failure secondary to nosocomial pneumonia in the postoperative period of laparoscopic hepatic bisegmentectomy for hepatocarcinoma. He entered the Unit intubated and under mechanical ventilation, with an APACHE II score of 13. He was extubated at 24 h, although he continued to require non-invasive mechanical ventilation. At admission, empirical intravenous antibiotic therapy with piperacillin/tazobactam 4 g/0.5 g/6 h and levofloxacin 500 mg/12 h was started. At 48 h, the Microbiology Service reported significant growth of *Escherichia coli* and *Pseudomonas aeruginosa* in respiratory secretions obtained by tracheal aspirate. In view of worsening respiratory symptoms and chest X-ray, and since the emergency antibiogram showed sensitivity to ceftazidime but did not test the antibiotics initially administered, it was decided to substitute the initial antibiotic therapy with ceftazidime 2 g/8 h and tobramycin 500 mg/24 h.

After the start of this new treatment, the patient presented progressive lowering of platelet count, which continued 3 days after suspension of tobramycin (Fig. 1). The patient continued to require non-invasive mechanical ventilation due to respiratory failure, although he showed no signs of sepsis and remained afebrile with normal procalcitonin levels and no coagulopathy or any other evidence of organic dysfunction associated with respiratory insufficiency. Thrombocytopenia was not accompanied by a decrease in red or white blood cells, and did not coincide with the addition of other drugs to the patient's treatment.

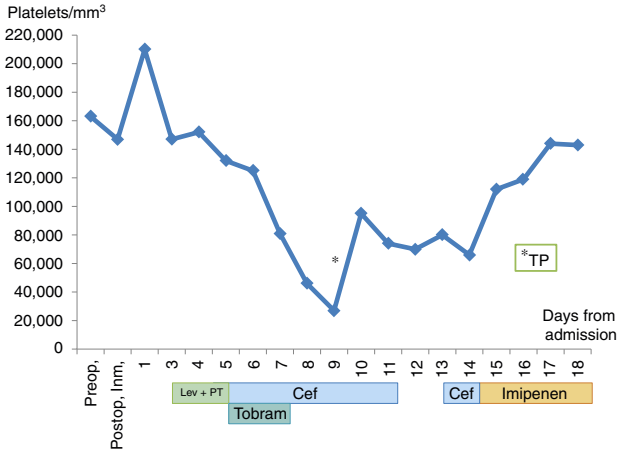

Figure 1 Evolution over time of the platelet count in relation to the antibiotic treatment administered. Preoperative, immediate postoperative and admission (day 0) levels are shown. Cef: ceftazidime; Lev: levofloxacin; Imm. Postop. Immediate postoperative; Preop: preoperative; PT: piperaziline/tazobactam; TP: Platelet transfusion; Tobram: tobramycin.

In addition, platelet levels fell progressively to the point of requiring transfusion of platelets through a central venous line. Suspecting, due to the timing of symptom onset, that this was secondary ceftazidime, it was decided to suspend this drug after 7 days of treatment. Platelet levels began to rise, but taking into account the severity of the patient's condition and the improvement of the clinical picture with ceftazidime, it was re-started in order to prolong treatment. The reintroduction of ceftazidime again coincided with a new decrease in platelet count, so it was decided to replace it with imipenem. Withdrawal of ceftazidime was accompanied by a progressive improvement in platelet count (Fig. 1).

The patient made good progress, non-invasive mechanical ventilation was withdrawn, and he was discharged to the hospital ward. The case presented was reported to the Spanish Pharmacovigilance System by the Unit's pharmacist. Naranjo's algorithm,[2] we calculated that there was a probably causal association (8 points) between the drug and the adverse event (Table 1).