

Fever, rash and agranulocytosis

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DESCRIPTION

A Caucasian woman aged 74 years successfully underwent laminectomy and decompression surgery for spinal stenosis, which was complicated by wound infection with community-acquired methicillin-resistant *Staphylococcus aureus* (MRSA), MRSA bacteraemia and endocarditis. MRSA was resistant to clindamycin, erythromycin and oxacillin. The patient was started on intravenous ceftaroline 600 mg two times per day. Four weeks later, she presented to the emergency room with fever and rash for 1 week. Physical examination revealed diffuse erythematous rash involving the hands, thighs and legs (figure 1A, B). Laboratory investigations revealed WCC 1000/mm³ (normal range: 4000–11 000), absolute neutrophil count 0, haemoglobin 8.2 g/dL (normal range: 12–16 g/dL) and platelets 279 000/mm³ (normal range: 150 000–400 000/mm³). Peripheral blood smear confirmed agranulocytosis (figure 1C) without abnormal blood cells. Ceftaroline-induced reaction was suspected. Therefore, she was admitted to hospital and ceftaroline was immediately discontinued. The patient was started on vancomycin to complete her antibiotic course and filgrastim was initiated. Blood cultures remained negative. Neutropenia resolved in 4 days, whereas rash and fever resolved in 10 days after discontinuation of ceftaroline.

Ceftaroline is a cephalosporin with bactericidal activity against resistant Gram-positive organisms

including MRSA and multidrug-resistant strains of *Streptococcus pneumoniae* and Gram-negative bacteria including Enterobacteriaceae.¹ Several drugs are associated with agranulocytosis, including methimazole, propylthiouracil, chloramphenicol and clozapine. Ceftaroline-associated agranulocytosis is extremely rare.² Management usually involves cessation of the offending drug and treatment of associated infection if present. Granulocyte colony-stimulating factor may hasten neutrophil recovery, lessen antibiotic use and shorten hospital stay.³ This case highlights the importance of close monitoring of patients receiving prolonged antimicrobial therapy, particularly ceftaroline.

Learning points

- ▶ Agranulocytosis is defined as the absence of granulocytes in peripheral blood.
- ▶ A number of drugs are associated with agranulocytosis, including antibiotics, antithyroid drugs and psychotropic drugs.
- ▶ Ceftaroline-associated agranulocytosis is a rare condition, which is managed by discontinuing the drug and treating the underlying infection with alternate antibiotics.



Figure 1 (A and B) Diffuse erythematous rash on extremities. (C) Peripheral smear shows the absence of neutrophils at $\times 40$ magnification (Wright-Giemsa stain).

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Competing interests None declared.

Patient consent Obtained.

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