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Cefuroxime Induced Rashes and Itching on Forehead: A Case Review

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ABSTRACT

A 70-year-old male patient admitted to the hospital's urology department experienced an adverse drug reaction (ADR) following the administration of Ceftum (cefuroxime). The symptoms were successfully resolved using Inj. Avil (pheniramine) and Inj. hydrocortisone. Causality and severity were assessed using the WHO-UMC scale ('probable'), the Naranjo scale ('probable'), and Hartwig's severity assessment scale ('moderate'). While not fatal, the reaction caused patient anxiety and a reduced quality of life, highlighting the need for clinician awareness, early detection, and proper management.

Index Terms: Adverse Drug Reaction • Causality assessment • Cefuroxime

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CASE REPORT

Cefuroxime Induced Rashes and Itching on Forehead: A Case Review

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Abstract

A 70-year-old male patient admitted to the hospital's urology department experienced an adverse drug reaction (ADR) following the administration of Ceftum (cefuroxime). The symptoms were successfully resolved using Inj. Avil (pheniramine) and Inj. hydrocortisone. Causality and severity were assessed using the WHO-UMC scale ('probable'), the Naranjo scale ('probable'), and Hartwig's severity assessment scale ('moderate'). While not fatal, the reaction caused patient anxiety and a reduced quality of life, highlighting the need for clinician awareness, early detection, and proper management.

Keywords: Adverse Drug Reaction, Causality assessment, Cefuroxime

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1 Background

Cefuroxime is a widely utilized second-generation cephalosporin antibiotic prescribed to treat and prevent susceptible bacterial infections. It exists in multiple dosage forms including oral tablets, oral suspension (as cefuroxime axetil), and intravenous/intramuscular injection (as cefuroxime sodium). Available strengths include 250 mg and 500 mg tablets, 125 mg/5 mL oral suspension, and 750 mg or 1.5 g injection vials. The maximum usual dosage frequency is typically every 8 hours (TDS) up to 1.5 g to 3 g daily for severe infections depending on clinical indications.

Although generally well-tolerated, it can trigger hypersensitivity reactions ranging from mild cutaneous symptoms to severe, life-threatening events. Drug-induced cutaneous eruptions—such as erythematous maculopapular rashes, urticaria, itching, or localized skin lesions—are clinically important yet occasionally under-recognized. The onset often occurs shortly after administration, especially in patients with prior β -lactam exposure. Pharmacovigilance tracking, early recognition, prompt drug discontinuation, and structured causality tools like the Naranjo algorithm are essential to prevent progression and ensure patient safety.

2 Case Presentation

A 70-year-old male patient received an initial dose of cefuroxime injection during his urology admission. Approximately 30 minutes post-administration, he developed an unexpected itching sensation, followed by erythematous rashes over his forehead within three hours. Following clinical evaluation, cefuroxime was identified as the suspected culprit.

To maintain intravenous access for necessary therapies, treatment was modified to include the following medications:

- Inj. Meropenem (Icubac): 1 g BD
- Pantoprazole (Maxpan): 40 mg OD

- Inj. Paracetamol (Kabimol): 1 g TDS
- Inj. Levosulpiride (Lesuride): 2 mL BD

3 Investigations

Physical examination revealed a localized cutaneous eruption over the forehead caused by Ceftum (cefuroxime), with no other major physical deformities or alternative findings; the patient remained conscious, oriented, and responsive.

Laboratory Findings: Elevated platelet count, eosinophil count, and direct bilirubin levels; reduced hemoglobin, hematocrit, SGPT, and lymphocyte levels. Blood glucose, blood pressure, and serum electrolytes remained within normal reference ranges.

ADR Assessments: Evaluated via the WHO-UMC scale ('probable'), Naranjo algorithm ('probable'), and Hartwig's Severity Assessment Scale ('moderate').

4 Treatment

Ceftum (cefuroxime) was immediately discontinued. Acute allergic manifestations were managed with Inj. Avil (pheniramine) to block histamine-mediated symptoms (itching, erythema, urticaria) and Inj. hydrocortisone to supply anti-inflammatory effects. Pruritus and skin manifestations gradually subsided with no further reaction progression. Given the patient's advanced age, hypertension, and diabetes mellitus, careful clinical monitoring was maintained throughout.

5 Outcome and Follow-Up

Following drug withdrawal and antiallergic therapy, the patient's forehead rash and itching showed progressive improvement and complete resolution during his hospital stay. Follow-up evaluations at 1-week and 4-week intervals confirmed complete clearing of the maculopapular lesions, normalized repeat laboratory parameters (eosinophil and

platelet counts), and zero recurrence. The patient and caregivers received counselling, a drug allergy alert card, and instructions to avoid future exposure to cefuroxime.

6 Discussion

This case illustrates a typical presentation of cefuroxime-induced hypersensitivity occurring shortly after drug administration. While immediate reactions can involve IgE-mediated pathways, delayed reactions often involve T-cell-mediated responses. Identifying drug-related reactions in elderly patients is frequently complicated by polypharmacy and coexisting medical conditions, making a careful review of administration timing and dechallenge responses critical. Structured tools like the WHO-UMC and Naranjo scales provide vital support for documentation, while clinical pharmacists play an indispensable role in medication review, ADR reporting, and patient counseling.

Contraindications & Drug Interactions

Cefuroxime is strictly contraindicated in patients with a known hypersensitivity to cefuroxime, other cephalosporins, or any component of the formulation. It should also be used with extreme caution in patients with a history of penicillin hypersensitivity due to potential cross-reactivity.

Regarding drug-drug interactions, concurrent administration of loop diuretics (such as furosemide) may adversely affect renal elimination or enhance nephrotoxicity. Antacids, H₂-receptor antagonists, and proton pump inhibitors (such as pantoprazole) can increase gastric pH and decrease the oral bioavailability of cefuroxime axetil. Furthermore, concomitant use with oral anticoagulants (like warfarin) may enhance the anticoagulant effect by depressing intestinal flora synthesis of vitamin K, requiring regular monitoring of prothrombin time and International Normalized Ratio (INR).

LEARNING POINTS / TAKE-HOME MESSAGES

- Cefuroxime can occasionally induce cutaneous hypersensitivity reactions, including itching and maculopapular rashes.
- Rashes appearing shortly after starting a medication demand careful evaluation for a drug-related etiology.
- Early discontinuation of the suspected agent is vital in managing antibiotic-related hypersensitivity.
- Symptomatic control can be effectively achieved using antihistamines and corticosteroids such as Inj. Avil (pheniramine) and hydrocortisone.
- WHO-UMC, Naranjo, and Hartwig's scales assist in determining ADR probability and severity.
- Proper documentation, reporting, and patient education are essential to prevent accidental re-exposure and improve medication safety.
- Interprofessional collaboration among physicians, clinical pharmacists, and nurses ensures timely recognition, treatment, and prevention of adverse events.

ABBREVIATIONS

ADR: Adverse Drug Reaction;

WHO-UMC: World Health Organization–Uppsala Monitoring Centre.

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