

Levofloxacin induced urticaria (Hives) on abdomen: A case report

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Abstract

A 40-year-old male patient was admitted to the hospital with dengue fever. While on treatment, an unexpected symptom of urticaria was observed following the intravenous dose of levofloxacin. Following assessment, the patient was given Lorazepam intravenously. On assessing causality of the adverse drug reaction (ADR), different ADR assessment scales such as the WHO-UMC (Uppsala Monitoring Center) scale, Naranjo scale, and Hartwig's severity assessment scale were used, and the ADR was found by these scales to be 'probable', 'probable', and 'moderate', respectively. It was found that the ADR is not fatal but causes patient anxiety and reduced quality of life. This case report is supposed to create physicians and clinicians aware and open-eyed regarding the ADR caused by levofloxacin, facilitating its early detection and management.

Keywords

urticaria; adverse drug reaction; levofloxacin; causality assessment.

Abbreviations

ADR: Adverse Drug Reaction; WHO-UMC: World Health Organization- Uppsala Monitoring Centre; CBC: Complete Blood Cell; ESR: Erythrocyte Sedimentation Rate; CRP: C reactive protein.

Introduction

Levofloxacin is a broad-spectrum, third-generation fluoroquinolones antibiotic that is active against both gram-positive and gram-negative bacteria, it functions by inhibiting the DNA gyrase and topoisomerase widely used in the treatment of mild-to-moderate metabolism and tract infections because of sensitive organisms. It is used in skin, lungs, ears, sinuses, urinary, prostate, breast, and diarrheal infections [3].

Urticaria is a rare skin disease condition characterized by red, raised, swollen, tender bump, itchy skin rash, or blister that is sometimes triggered by an allergen. A substance are a few things that produces sensitivity. It is also known as hives, welts, and nettle rash. They can take many shapes and can be very itchy. They usually develop in teams and will cowl massive areas of skin. Hives will have an effect on any a part of the body. Oncesensitivity happens, the body releases a macromolecule referred to as histamines.

Such a condition makes an individual very anxious about his condition and causes a decline in quality of life and could even reduce faith in the health care professionals. So, this fact makes reporting of ADR extremely important [1].

Case Presentation

A 40-year-old male patient was admitted to the hospital with the chief complaints of body ache and generalized weakness due to dengue fever. He was previously diagnosed to have diabetes mellitus and hypertension over 20 years and 15 years respectively. In the hospital, patient assessment, and lab investigation were done. After that intravenous line was established for administering drugs, and he was prescribed.

IV Gramocoff 2 g BD

IV Grandem 1 ml BD

IVF Levofloxacin 100 ml OD

IVF Paracetamol 100 ml BD

IV Dexamethasone 2 ml OD

SC Insulin 10 IU TDS according to RBS level

Tab Cynim-MD SOS,

Tab Carvedilol 3.125 mg BD

Tab Lasilactone 50 mg ½ OD

Tab Synriam (HS) for 3 days

Syp Ranidom 2 tbsp TDS

During the treatment, the patient complained of sudden itching and due to itching red color rashes appears on his abdominal region that began just about 5-7 minutes after infusion of levofloxacin.

Investigations

The patient was diagnosed with urticaria or hives induced by levofloxacin; no other abnormality and deformity were found on physical examination. During the examination, the patient was conscious and responsive. Sensory organs were intact. His complete blood count, blood sugar, and blood pressure were found to be normal. Serum electrolytes were within the limits. But ESR and C-reactive protein were slightly increased. Other investigations such as urine examination and abdominal X-ray were not being monitored. The patient was advised to undergo autologous serum skin test and closed ballpoint pen tip to diagnose dermographism, but he refused this and other investigations.

Causality assessment of the adverse drug reaction (ADR) was conducted using different scales such as the WHO-UMC (Uppsala Monitoring Center) scale, Naranjo scale, and Hartwig's severity assessment scale, and the ADR was found by these scales to be 'probable', 'probable', and 'moderate', respectively. Levofloxacin was found to be the first participant drug for this ADR.

Treatment

On assessing the ADR, the patient was immediately given oral fexofenadine hydrochloride 120 mg to calm down and cause urticaria, hence reversing the action of levofloxacin. The ADR causing drug levofloxacin was omitted from the further treatment chart resulting in complete eradication of urticaria or any other related symptoms. Antihistamines category which is the recommended treatment for urticaria was not given as the symptoms resolved on withdrawal of levofloxacin. No other was required for the management of the ADR.

Outcome an Follow-Up

The urticaria symptoms subsided with the withdrawal of levofloxacin and a single dose of levocetirizine. The patient stayed in the hospital for the next 2 days where he was being treated with similar medications except levofloxacin. On follow-up, it was observed that no similar urticaria or related symptoms were eradicated after withdrawal of the drug.

Discussion

Urticaria or hives is a dermatological disorder that manifests as red, raised erythematous lesions, an outbreak of swollen, pale red bumps or plaque (wheals) on the skin that appears suddenly either as a result of the body's reaction to sure allergens or for unknown reasons. Hives typically cause cutaneous sensation, however may additionally burn or sting. They'll take several shapes and may be terribly fretful. They typically develop in teams and should cowl massive areas of skin. Hives will have an effect on any a part of the body [1].

The main mechanism within the formation of nettle rash is that the unharness of varied mediators from mast cells. The matter entering the body binds to specific antibodies on mast cells and basophils, inflicting the discharge of the many mediators, primarily amine. As a result, puffiness thanks to erythroderma and accumulated porousness secondary to vasodilatation. Mast cells cannot be restimulated till regranulation once degranulation, that explains why the nettle rash plate doesn't reappear for many days within the region. Any drug might cause nettle rash. However, the foremost usually encountered ones are antibiotic drug, aspirin, nonsteroidal anti-inflammatory drugs, sulfonamides, water pill diuretics, oral contraceptives, angiotensin-converting enzyme inhibitors, vitamins, codeine, morphine, synthetic adrenocorticotrophic hormone, and radiocontrast substances [4].

Levofloxacin is a broad-spectrum, third-generation fluoroquinolones antibiotic that is active against both gram-positive and gram-negative bacteria, it functions by inhibiting the DNA gyrase and topoisomerase is widely used in the treatment of mild-to-moderate metabolic and tract infections because of sensitive organisms. Levofloxacin could be a safe and effective medication on the globe Health Organization's essential medicines list. Levofloxacin is FDA-approved for the treatment of medical building respiratory illness, community-acquired respiratory illness, acute microorganism rhinosinusitis, acute microorganism exacerbation of bronchitis, acute microorganism redness, pyelonephritis, tract infection, skin or skin structure infections, prophylaxis, and treatment of plaque due to *Yersinia pestis*, and to reduce the incidence of disease progression of inhalational anthrax [2].

levofloxacin was a safer drug in use when compared to other fluoroquinolones drugs. Recently few cases of levofloxacin induced ADR including angioedema, anaphylactic reactions (confusion, hypotension, flushing in face and neck, and severe itching with rashes that spread all over the body), induced bullous fixed drug eruption had been reported to be induced by levofloxacin [5].

Literature states that instances of hypersensitivity or hypersensitivity reaction reacts with fluoroquinolones square measure abundant lesser and milder than with NSAIDs or Beta-lactams, so not requiring hospitalization in most cases. The fact that antihistamines don't facilitate altogether cases of rash indicates that histamine isn't the sole fretful and hives-inducing substance that's enjoying a task here. Some medications, like opiate, codeine, aspirin, and different anti-inflammatory medication (NSAIDs, like Advil [Advil]), cause the body to unharness aminoalkane and produce rashes through nonallergic mechanisms. People with urticaria should avoid these medications. [2]

Learning Points/Take Home Messages

- Urticaria or hives is a dermatological disorder that manifests as raised erythematous lesions, an outbreak of swollen, pale red bumps or plaque (wheals) on the skin that appears suddenly either as a result of the body's reaction to certain allergens or for unknown reasons [1].
- Hives usually cause itching, but may also burn or sting. They are pruritic and typically resolve with no changes to the appearance of the skin [1].
- Levofloxacin tends to cause extrapyramidal symptoms including angioedema, acute anaphylactic reactions (flushing in the face and neck, hypotension, tachycardia, confusion), and induced bullous fixed drug eruption [2].
- Causality assessment of the ADR was conducted using different scales such as the WHO-UMC (Upsala Monitoring Center) scale, Naranjo scale, and Hartwig's severity assessment scale, and the ADR was found by these scales to be 'probable', 'probable', and 'moderate', respectively.
- Levofloxacin was found to be the first participant drug for this ADR.

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