



Levofloxacin Induced Angioedema: A Case Report

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ABSTRACT

Levofloxacin is a broad spectrum antibiotic of the class third generation fluoroquinolone. A 48yr old female patient is on levofloxacin antibiotic for fever develop itching and swelling of the eye and leg on the third day of treatment. The reaction is probable due to the antibiotic. This kind of reaction is very rare due to levofloxacin. The condition was treated with the stoppage of drug along with anti-allergic medications.

Keywords: Fluoroquinolone, hypersensitivity, anaphylactic reactions.



INTRODUCTION

Levofloxacin is commonly prescribed antibiotic for managing chest and urinary tract infection. Levofloxacin is a third generation fluoroquinolone antibiotic. [1] It is well tolerated by most of the patient. It has good mono therapeutic action with extended coverage against pseudomonas patient as well as excellent activity against pneumococcus. It is a l stereoisomer of parent compound ofloxacin. The common adverse effects involves gastro intestinal and central nervous system disturbances, hypersensitivity reactions and anaphylactic reactions. In a clinical trial study, 11% of patients experienced side effects. Out of only 4% relieved from the symptoms after discontinuation of therapy. [3]

Serious and occasionally fatal hypersensitivity and/or anaphylactic reactions have been reported in patients receiving levofloxacin. In some patients the reactions occur immediately after the first dose such as prolonged QT interval, tachycardia, toxic epidermal necrosis, vasodilation, photosensitivity reaction, pancytopenia, exacerbation of myasthenia gravis, uveitis and visual disturbance, tinnitus, dyspnoea, urticaria, itching. First step is immediate discontinuation of the drug. Serious acute hypersensitivity reaction may require treatment with epinephrine and other resuscitative measures, including oxygen, IV fluids, antihistamines, corticosteroids, pressure amines and airway management as clinically indicated. [4]

CASE REPORT

A 48 Year old female patient came to the Hospital with a history of itching and development of oedema in leg and all over the face especially on the lips and around the eye. She had history of fever for 3 days, for which she was on levofloxacin 500mg 0-0-1 (Levoflox). The subject receive one dose of levofloxacin and supportive therapy. Fever decreased and noticed swelling of face, eye and leg in the mid night. Laboratory data found that she had an elevated total count of 19310cells/ μ L. Differential count include N90L08M02. Also found that increased ESR of 64 mm/hr and CRP of 8 mg/ml. She had no past H/O similar event and not a known case of allergy to any antibiotics.

A provisional diagnosis of levofloxacin induced angioedema was made and patient advised to stop levofloxacin 500mg, and advised inj. Chlorpheniramine maleate 25mg (Avil) and inj. Hydrocortisone stat. Next day patient symptoms were decreased.

DISCUSSION

Levofloxacin is a third generate on fluoroquinolone. It is the active levo (s) isomer of ofloxacin having improved activity against *Strep. pneumoniae*. and some other gram-positive and gram-negative bacteria. [3] Anaerobes are moderately susceptible. Oral bioavailability of levofloxacin is nearly 100%; oral and IV doses are similar. It is mainly excreted unchanged, and a single daily dose is sufficient

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because of slower elimination and higher potency. Theophylline, warfarin, cyclosporine and zidovudine pharmacokinetics has been found to remain unchanged during levofloxacin treatment. The primary indication of levofloxacin is community acquired pneumonia and exacerbations of chronic bronchitis in which up to 90% cure rate has been obtained. High cure rates have been noted in sinusitis, pyelonephritis, prostatitis and other UTI, as well as skin/soft tissue infections. [1] First-generation drugs (e.g. nalidixic acid) can achieve minimal serum levels. Second-generation quinolones (e.g., ciprofloxacin) have increased gram-negative and systemic activity. Fourth-generation quinolone drugs (currently only trovafloxacin) add significant activity against anaerobes. [2] The adverse drug reactions associated with the intake of fluoroquinolones most commonly affect gastrointestinal system, central nervous system and skin. [5] The prevalent gastrointestinal adverse effects includes nausea, vomiting and diarrhoea, which occur in 3 to 6 per cent of recipients. [6] Fluoroquinolones are associated with increased risk of tendinitis and tendon rupture in ages, the risk is further increased in older patients, in kidney, heart and lung transplant recipients and with use of concomitant corticosteroid therapy. May exacerbate muscle weakness in patients with myasthenia gravis. Also fatal hypoglycaemia reported in elderly patients with or without diabetes. It was also produce fungal or bacterial super infection with prolonged treatment.

Other common side effects are central nervous system effects (headache, confusion and dizziness), phototoxicity (more common with lomefloxacin and sparfloxacin), cardiotoxicity (sparfloxacin) and hepatotoxicity (levofloxacin, trovafloxacin). Levofloxacin mediated Achilles tear has been reported recently however tendinopathy was associated with earlier quinolone classes. [7] Angioedema is defined as sudden swelling of skin, subcutaneous and sub mucosal tissue, respiratory or gastrointestinal tracts. [4] Angioedema is non-pitting transient (lasting up to 7 days),and independent of the position of the body-in contrast to oedema, which is pitting, persistent, and dependent on body

position. The chance of drug induced angioedema is extremely uncommon. The main pathophysiologic process is due to the release of inflammatory mediators such as histamine, bradykinins and serotonin which are responsible for inflammation, arteriolar dilation, eventually vascular leakage and tissue swelling. [1] Angioedema is classified as either hereditary or acquired. [8]

Acquired angioedema (AAE) can be immunologic, nonimmunologic or idiopathic. It is usually caused by allergy and occurs together with other allergic symptoms and urticarial. It can also occur as a side effect to certain medications, particularly ACE inhibitors. It is characterized by repetitive episodes of swelling, frequently of the face, lips, tongue, limb, genitals. Oedema of the gastrointestinal mucosa typically leads to severe abdominal pain, in the upper respiratory tract, it can be life threatening. [4]

Hereditary angioedema (HAE) exists in three forms, all of which are caused by a genetic mutation inherited in an autosomal dominant form. They are distinguished by the underlying genetic abnormality. Types I and II are caused by mutations in the SERPINGI gene. Type III HAE has been linked with mutations in the F12 gene. [2]

CONCLUSION

Levofloxacin is a third generation fluoroquinolone antibiotic with broad spectrum of activity more susceptible to anaerobes. Here, in our case report patient experienced a hypersensitivity reaction of angioedema of face resulting in facial swelling and puffy eyes which is rare reported in less than 5% of users. Angioedema is often self-limiting may result in respiratory obstruction and be fatal, mainly implicated in NSAID'S and Antibiotics. Clinicians should be aware of this potential event, which might also lead to pulmonary oedema even in setting of normal renal function. According to the literature survey this is the first kind of reported case for angioedema, for future this acts as signal generator.

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