

**Bilateral angioedema of eye with single dose of cetirizine****Lakhan Majhee<sup>1\*</sup>, Md. Rashid Haider Khan<sup>2</sup>, Manju Gari<sup>1</sup>**

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**ABSTRACT**

The H<sub>1</sub>-antihistamine cetirizine is considered to be one of the safest drugs with well-established safety and efficacy. Very rarely cetirizine can cause adverse drug reaction in the form of dose-dependent somnolence, dizziness, or fatigue. We report a case of 27-year-old female patient with isolated angioedema on both the eye due to the administration of single dose of cetirizine 10 mg for hemorrhoids with pruritus ani. The mechanism of reaction remains unclear.

**Keywords:** Adverse drug reaction, Cetirizine, Angioedema

**INTRODUCTION**

For allergic diseases and angioedema, antihistaminics are the commonly used drugs for treatment, cetirizine is one of them. It is the only drug as the second generation piperazine derivatives with H<sub>1</sub>-antagonistic activity.<sup>1</sup> Angioedema as an allergic reaction is generally a locally involved swelling of subcutaneous tissue of periorbital area, perioral area, tongue, genital area, and extremities.<sup>2,3</sup> There are drugs responsible for hypersensitivity reaction including angioedema with or without urticaria.<sup>4</sup> Some of the cases are reported on skin reaction due to cetirizine and other antihistamines<sup>5-9</sup> but not a single case on cetirizine induced angioedema neither reported nor documented anywhere. Here, we present the first case of isolated bilateral angioedema of eye with a single oral dose of cetirizine.

**CASE REPORT**

A 27-year-old well-educated female patient visited the adverse drug reaction (ADR) Monitoring Centre, RIMS, Ranchi with bilateral swelling of the eye (Figure 1). She took medication for hemorrhoids with pruritus ani which was prescribed by the local practicing doctor. Medications were cetirizine 10 mg (Alerid<sup>®</sup>, Cipla); hydrocortisone acetate 5.58 mg, sod. Heparinate 100 i.u., soframycin 10 mg, eculoside 10 mg, ethoform 10 mg, butoform 10 mg (Proctosedyl Ointment<sup>®</sup>, Safoni Aventis); fluconazole 150 mg (Nuforce<sup>®</sup>, Mankind); Pilex herbal tablet<sup>®</sup> (Himalaya); sodium picosulphate (Cremalex<sup>®</sup>, Abbott); lidocaine ointment<sup>®</sup> (lox 5%, neon labs). On taking the first dose of these medicines, the patient experienced swelling on both eyes within 4 hrs which made her visit to ADR



**Figure 1: Cetirizine induced bilateral angioedema of eye.**

Monitoring Centre. We immediately consulted with the skin department of our hospital where the bilateral swelling of the eye was confirmed as angioedema. The patient was kept in follow-up without giving any treatment for angioedema and the prescribed drugs were stopped. The swelling subsided within 24 hrs of stopping medication.

The patient had a history of juvenile diabetes mellitus and levocetirizine induced swelling of eye. She denied taking alcohol and smoking. In a laboratory investigation, the complete blood cell count was normal but blood sugar value was found elevated, fasting - 278 g/dl; post prandial - 414 g/dl; hemoglobin A1c - 13%.

Rechallenge test was done with single prescribed drug in a day. The day patient was rechallenged with cetirizine 10 mg; she again developed swelling of both eye but rechallenge with other concomitant drugs had no effect.

The causality assessment of the ADR by Naranjo Algorithm was 9, putting it in a “certain” ADR category.<sup>10</sup> The ADR was reported to the National Coordinating Centre under the Pharmacovigilance Programme of India.

## DISCUSSION

It is well-established that H<sub>1</sub> receptor antagonists have a place in the treatment of hypersensitivity reaction, with little-known facts that it can also provoke allergic reaction. There are no known H<sub>1</sub> antihistaminics which are free from adverse effects, although having a good tolerance in human.<sup>11</sup>

Reports are there on cetirizine causing dermatological reactions like fixed drug eruptions<sup>12</sup> urticaria<sup>13</sup> and anaphylaxis,<sup>14</sup> but no cases have been reported about cetirizine causing isolated angioedema.

H<sub>1</sub> receptor antagonists competitively antagonize the action of histamine at H<sub>1</sub> receptor; cetirizine is one of them. Cetirizine is the second generation piperazine derivative and a metabolite of hydroxazine with marked affinity for the peripheral H<sub>1</sub> receptor.<sup>15</sup>

Isolated angioedema is not identifiable (idiopathic angioedema) in most of the cases, which are believed to be

mediated through immunoglobulin E - independent mast cell activation.<sup>16,17</sup> Bradykinin is also responsible to cause isolated angioedema with some of the drugs like angiotensin-converting enzyme inhibitors.<sup>18</sup>

In the case of cetirizine causing anaphylaxis, it may be linked to piperazine ring, which is well-known for its antigenic property,<sup>19</sup> but has no effect on mast cell activation.<sup>20</sup>

## CONCLUSION

Even though the safety of cetirizine has been widely established in the treatment of allergic reaction, such as urticaria, angioedema, and anaphylaxis. In our case, it caused isolated bilateral angioedema of eye. Hence, possibility of cetirizine causing angioedema may be considered in the list of ADR due to cetirizine. Although more reports and long-term study data is needed to established cetirizine causing angioedema.

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