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Letter to the Editors

Cetirizine-induced anaphylaxis: a rare adverse drug reaction

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A 30-year-old female patient was prescribed oral cetirizine 10 mg at night for the treatment of chronic idiopathic urticaria. Within 15 min of oral ingestion of cetirizine 10 mg, the patient experienced severe pruritis and urticarial eruption all over the body. She developed severe breathlessness and was unable to speak. The patient became restless, disoriented and lost consciousness. She was rushed to the emergency room. Her pulse and blood pressure were unrecordable and air entry was decreased in both lungs. A diagnosis of anaphylactic shock was made. Cardiopulmonary resuscitation was started and epinephrine 0.5 mg of 1 : 10 000 was given intravenously. She also received intravenous crystalloid. After approximately 30 min, the pulse rate increased to 100 beats min^{-1} and blood pressure to 124/80 mmHg. Hydrocortisone 100 mg was then given intravenously. The patient remained haemodynamically stable. She had no previous history of allergic reactions to any drug. There was no history of concomitant use of any other medication or alcohol intake, nor of previous exposure to cetirizine or any other piperazines. The patient received only one oral dose of cetirizine.

The causality assessment of the adverse drug reaction (ADR) by Naranjo Algorithm was 7, putting it in a 'probable' ADR category [1]. The ADR was reported to the peripheral pharmacovigilance centre of the state under the National Pharmacovigilance Programme, India.

Histamine-1 (H_1) receptor antagonists have an established and valued place in the symptomatic treatment of various immediate hypersensitivity reactions. Nevertheless, it is a little known fact that although H_1 receptor antihistamines are used in the treatment of drug-mediated allergy, they themselves can provoke allergic reactions. Although they have shown good tolerance in humans, no currently available antihistaminic is completely free from potential adverse effects under all circumstances [2]. There have been several reports of cetirizine causing multiple fixed drug eruptions and urticaria [3–6]. However, anaphylaxis due to oral ingestion of cetirizine is extremely rare.

All the available H_1 receptor antagonists are reversible competitive inhibitors of the interaction of histamine with H_1 receptors. Cetirizine, a human metabolite of hydroxyzine, is a selective H_1 receptor antagonist belonging to the second-generation piperazine class. Cetirizine is well absorbed orally and is excreted in the urine mainly in the unmetabolized form.

Many drug reactions attributable to allergic phenomena respond to therapy with H_1 antagonists, particularly those characterized by itch, urticaria, and angio-oedema; serum-sickness reactions also respond to intensive treatment. In humans, during hypersensitivity reactions, oedema formation and itch are effectively suppressed by histamine antagonists. Other effects, such as hypotension, are less well antagonized. This may be explained by the participation of other types of histamine receptors and by effects of other mast cell mediators such as prostaglandins, eicosatetratenoic acid derivatives, leukotrienes and others. Prophylactic treatment with a H_1 antagonist may reduce symptoms of the hypersensitivity reaction to a tolerable level. However, in a patient with known hypersensitivity to cetirizine, repeat administration of cetirizine or hydroxyzine is contraindicated [7].

The exact mechanism by which cetirizine can cause anaphylaxis is not known, but may be linked to the piperazinic ring that is well known as an antigen [8]. Also, cetirizine has no effect on mast cell activation [9].

In conclusion, even though the safety of cetirizine has been widely established, there is an extremely rare chance of it causing anaphylaxis. Cetirizine may be used in the treatment of anaphylaxis. Hence this possibility (and similarly with other antihistamines) needs to be considered in the differential diagnosis of a patient not responding to treatment or deteriorating. Cetirizine may also mimic the underlying disease that led to its intake [10].

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