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Case Report

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Successful prevention of recurrent anaphylactic events with anti-immunoglobulin E therapy

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Anaphylaxis is a fatal and systemic allergic reaction, which can be prevented by avoiding exposure to a causative agent. However, the causative agent cannot be identified in all cases and may be hardly avoided. A 41-year-old man, diagnosed with idiopathic anaphylaxis, experienced 6 anaphylactic events over 7 months, requiring 4 emergency department (ER) visits and 3 epinephrine self-injections. Anti-immunoglobulin E (IgE) therapy was introduced to prevent further anaphylactic events. He experienced no anaphylactic events during 13 months of 4 monthly injections from the beginning until his most recent ER visit because of a similar anaphylactic event. We report a patient who experienced recurrent anaphylactic events that were prevented effectively by anti-IgE therapy with omalizumab. Anti-IgE therapy might be considered as an option to prevent anaphylactic events in patients for whom the causative agent(s) cannot be identified or avoided.

Key words: Anaphylaxis; Omalizumab; Immunoglobulin E; Prevention and control; Immediate hypersensitivity

INTRODUCTION

Anaphylaxis is an allergic reaction with multiorgan involvement, which might be life-threatening. The binding of a causative agent to specific immunoglobulin E (IgE) sensitized on the surface of effecter cells activates mediators and substances resulting rapid progressing allergic inflammation. To prevent anaphylaxis, exposure to the causative agent should be avoided [1]. However, the causative agent cannot be identified in all cases and may not be avoided with ease.

We treated a patient diagnosed presumably with idiopathic anaphylaxis, whose anaphylactic events were fully prevented by anti-IgE therapy.

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CASE REPORT

A 41-year-old man visited an emergency department (ER) because of abrupt onset of swollen lips, hives over the whole body, shortness of breath, abdominal cramping pain, diarrhea, and dizziness, which had started minutes after eating his usual dinner. He had no previous history of allergy except for an event of hives after taking medication years before, which, he was told, was caused by hypersensitivity to the antibiotic.

After another similar event led him to the ER, he was transferred to a referral hospital where he was diagnosed with idiopathic anaphylaxis and prescribed with self-injectable epinephrine. He experienced 6 similar events over 7 months, requiring 4 ER visits and 3 epinephrine self-injections. The events were not preventable with oral antihistamine and prednisolone.

The results of routine blood tests were within normal limits. The serum total IgE concentration was elevated (116.1 IU/mL), but he was negative for common food allergens in specific IgE tests (AdvanSure food panel, LG Life Science, Seoul, Korea). He had lower titers (class 1) of specific IgE to amoxicilloyl and cefaclor (ImmunoCAP, Pharmacia, Uppsala, Sweden). A skin prick test with ampicillin was negative, but a large wheal and flare reaction appeared in a intradermal test with 1:100 diluted ampicillin. To avoid possible exposure to penicillin derivatives in meat, he was asked to adopt a vegetarian diet, but this did not prevent further anaphylactic events, and he experienced 2 more anaphylactic events in 5 months (Fig. 1).

Anti-IgE therapy was introduced to prevent further anaphylactic events. He received 300 mg of omalizumab (Xolair, Genentech, South San Francisco, CA, USA). He experienced no anaphylactic events during 4 months of monthly injections. For the next 9 months, he did not visit the clinic to have anti-IgE therapy for himself until his most recent ER visit because of a similar anaphylactic event. He requested to restart monthly anti-IgE therapy.

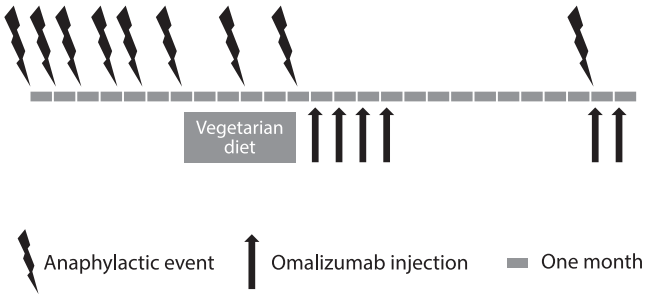

Fig. 1. The chronological scheme of the patient's anaphylactic events.

DISCUSSION

To prevent anaphylaxis, avoidance of all identified causative agents such as relevant foods, insect stings and medications is recommended. Medical prophylaxis with glucocorticoids and antihistamine prophylaxis might be helpful [1], but was not effective in this patient. The causative agents are not always clearly identifiable [2]. In patients with recurrent anaphylaxis but without a clear identification of the causative agents or inability to avoid these, self-treatment with self-injectable epinephrine in the community is strongly recommended [1].

Omalizumab, a recombinant humanized anti-IgE monoclonal antibody, has been used effectively in some IgE-mediated disorders such as atopic asthma, allergic rhinitis, and chronic urticaria, even though it is approved only as an add-on treatment or severe asthma at present [3-6]. This drug also has a prophylactic effect against severe allergic reaction when used for up-dosing in allergen-specific immunotherapy [7, 8]. Anaphylactic events after exposure to various causative agents such as an insect sting, food, and exercise can be prevented [9, 10], even in cases of idiopathic anaphylaxis [11-13].

During anaphylaxis, specific IgE must bind to the allergen and signal the effecter cells. In the serum, free IgE is captured by anti-IgE, thereby preventing its interaction with mast cells and basophils. In some mast cell disorders, anti-IgE therapy is also effective in preventing interactions between allergens and sensitized IgE on effecter cells [14].

The optimum doses and treatment intervals of omalizumab were not known as a prophylactic effect. In this patient, the anaphylactic events were prevented completely by monthly injection of 300 mg of omalizumab, and the preventive effect lasted more than months without the need for additional injection. For anaphylaxis protection, it may be suggested either the optimal dosage is smaller or the dose-interval is longer, or both as maintenance, than those in manufacturer's suggestions in the treatment of severe asthma.

We report a patient who experienced recurrent anaphylactic events that were prevented effectively by anti-IgE therapy with omalizumab. Anti-IgE therapy might be considered as an option to prevent anaphylactic events in patients for whom the causative agent(s) cannot be identified or avoided.

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REFERENCES

1. Simons FE, Ardusso LR, Bilo MB, Dimov V, Ebisawa M, El-Gamal YM, Ledford DK, Lockey RF, Ring J, Sanchez-Borges M, Senna GE, Sheikh A, Thong BY, Worm M; World Allergy Organization. 2012 Update: World Allergy Organization Guidelines for the assessment and management of anaphylaxis. Curr Opin Allergy Clin Immunol 2012;12:389-99.
2. Webb LM, Lieberman P. Anaphylaxis: a review of 601 cases. Ann Allergy Asthma Immunol 2006;97:39-43.
3. Nam YH, Kim JH, Jin HJ, Hwang EK, Shin YS, Ye YM, Park HS. Effects of omalizumab treatment in patients with refractory chronic urticaria. Allergy Asthma Immunol Res 2012;4:357-61.
4. Kaplan AP. Treatment of chronic spontaneous urticaria. Allergy Asthma Immunol Res 2012;4:326-31.
5. Lieberman JA, Chehade M. Use of omalizumab in the treatment of food allergy and anaphylaxis. Curr Allergy Asthma Rep 2013;13:78-84.
6. Nam YH, Lee SK. Management of severe refractory asthma. Korean J Med 2012;83:438-43.
7. Lee J, Doggweiler-Wiygul R, Kim S, Hill BD, Yoo TJ. Is interstitial cystitis an allergic disorder?: A case of interstitial cystitis treated successfully with anti-IgE. Int J Urol 2006;13:631-4.
8. Kontou-Fili K, Filis CI. Prolonged high-dose omalizumab is required to control reactions to venom immunotherapy in mastocytosis. Allergy 2009;64:1384-5.
9. Sicherer SH, Leung DY. Advances in allergic skin disease, anaphylaxis, and hypersensitivity reactions to foods, drugs, and insects in 2009. J Allergy Clin Immunol 2010;125:85-97.
10. Jaqua NT, Peterson MR, Davis KL. Exercise-induced anaphylaxis: a case report and review of the diagnosis and treatment of a rare but potentially life-threatening syndrome. Case Rep Med 2013;2013:610726.
11. Jones JD, Marney SR Jr, Fahrenholz JM. Idiopathic anaphylaxis successfully treated with omalizumab. Ann Allergy Asthma Immunol 2008;101:550-1.
12. Warrier P, Casale TB. Omalizumab in idiopathic anaphylaxis. Ann Allergy Asthma Immunol 2009;102:257-8.
13. Pitt TJ, Cisneros N, Kalicinsky C, Becker AB. Successful treatment of idiopathic anaphylaxis in an adolescent. J Allergy Clin Immunol 2010;126:415-6; author reply 416.
14. Bell MC, Jackson DJ. Prevention of anaphylaxis related to mast cell activation syndrome with omalizumab. Ann Allergy Asthma Immunol 2012;108:383-4.

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