

Histamine Intolerance Imitated a Fish Allergy

Sir,

Histamine plays an important role as a mediator in allergic and pseudoallergic reactions. The biological effects of histamine under physiological and pathophysiological conditions are well known and are mediated by specific H₁ and H₂ receptors. Furthermore, histamine is a widely distributed biogenic amine, found in many foods (1). The level of histamine in the blood after eating histamine-rich foods depends on its passage through enterocytes. Diamine oxidase, located in the enterocyte cytoplasm, is thought to be important in inactivating histamine before it enters the blood system. Previous observations led to the hypothesis that a decrease in the activity of diamine oxidase may be responsible for the increase in blood level of histamine that precedes allergic reactions (2).

In this case we report that a high level of histamine in tuna was responsible for an anaphylactoid reaction caused by histamine intolerance.

CASE REPORT

A 44-year-old woman suffered an anaphylactoid reaction (grade III) (3) 15 min after eating a fish dish consisting of salmon, tuna, red snapper and shrimps. The patient required emergency treatment with epinephrine, high-dose corticosteroids and antihistamines. After exclusion of other causes of incompatibility she was sent to us for allergy diagnosis.

All serum laboratory data were normal. No specific IgE antibodies against fish or other food were found. In PRICK tests with seasonal and perennial aeroallergens, fungi and fish and other foods no type I sensitization was detected. In oral provocation with 1–20 g fish (salmon, shrimps and tuna) no reaction was observed.

An oral provocation test with histamine was then performed. The patient developed diarrhoea 30 min after ingesting 60 mg of histamine. The serum level of histamine was elevated six times (121.9–745.7 µg/l) compared with base level. We therefore made the diagnosis of histamine intolerance.

DISCUSSION

There are many published reports of anaphylaxis as a specific allergic reaction to fish, shrimps or other types of seafood (4, 5). The present case, however, shows that histamine intolerance should be included in the differential diagnosis of anaphylaxis after eating fish. After a diagnosis of histamine intolerance, patients must be advised to avoid histamine-rich food, and drugs which may block intestinal diamine oxidase (Table I) (6).

Table I. Foods high in histamine, and drugs that inhibit intestinal diamine oxidase

| | Histamine (mg/kg) |
|---------------------|-------------------|
| <i>Foods</i> | |
| <i>Fish</i> | |
| sardines | 1500 |
| tuna | 13 000 max. |
| anchovy | 176 |
| <i>Cheese</i> | |
| Emmenthaler | 555 |
| Gouda | 180 |
| Tilsiter | 60 |
| <i>Sausage</i> | |
| salami | 279 |
| <i>Vegetable</i> | |
| sauerkraut | 200 |
| tomatoes | 22 |
| Wine/beer | 13 |
| <i>Drugs</i> | |
| Imipenem | Clavulanic acid |
| Dobutamine | Dihydralazine |
| Pancuronium | Chloroquin |
| Pentamidine | Cycloserine |
| Salazosulfapyridine | Acetylcysteine |
| Verapamil | Metoclopramide |
| Isoniazid | Cefuroxime |

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Accepted July 6, 1998.

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