

Soy anaphylaxis

P. Tamarcaz*, C. Hauser, P. A. Eigenmann

Key words: anaphylaxis; food-dependent exercise-induced anaphylaxis; food hypersensitivity; soy.

● EXERCISE-INDUCED anaphylaxis (EIA) is an uncommon condition. However, it is increasingly reported, possibly in relation to an augmentation of physical exercise. In one-third of the patients, anaphylactic reactions are associated with a specific food ingested before exercise, leading to food-dependent, exercise-induced anaphylaxis (FDEIA).

We report the case of a 29-year-old man who, 20 min after a submaximal effort on a bicycle and 10 min after ingestion of a Japanese drink containing soy protein, experienced an anaphylactic reaction with sneezing, nasal obstruction, generalized pruritus, shortness of breath, and throat tightness. The symptoms rapidly resolved after intravenous administration of clemastine and prednisolone.

The patient's personal and family history revealed no atopy or food intolerance.

Skin prick tests with food allergens were positive to soy (3 mm). Prick-to-prick testing with the soy drink was positive (5 mm). The size of the wheal to histamine was 5 mm. Specific IgE antibodies (CAP FEIA[®], Pharmacia) to soy were undetectable.

Oral challenges under resting conditions to soy and to the suspected soy drink remained negative. A food challenge associated with exercise, consisting of a submaximal effort (196 W on a treadmill) 15 min after the soy drink, was positive. Ten minutes after ending the exercise, the patient presented eyelid edema, as well as pruritus and erythema of the hands and scalp, but there was no dyspnea or modification of

spirometry. The patient was instructed strictly to avoid soy. After 8 months of follow-up, he did not re-present similar reactions despite regular exercise.

Soy-related adverse reactions are mainly reported in children (1), but they may also represent an underestimated cause of severe life-threatening reactions in adults. While four fatal anaphylactic reactions have recently been reported over 3 years in young children with severe peanut allergy and asthma (2), none have been reported in adults.

A number of cofactors may be implicated in EIA, such as atopy (71%), extreme climatic conditions, and ingestion of aspirin or other nonsteroidal anti-inflammatory drugs and relevant foods (37%) (3).

The diagnosis of FDEIA is based on screening for potential food allergens by skin prick tests, prick-to-prick tests, specific IgE antibody measurement, and, in equivocal cases, double-blind, placebo-controlled food challenges associated with exercise (4). Soy allergy is rarely reported in adults. Foods are often suspected as triggers in EIA, and soy might be an unrecognized food more frequently involved in EIA than previously suspected. Complete soy avoidance, or at least avoidance of soy for 4 h before physical exercise, is an effective method of prevention in patients diagnosed with soy-induced FDEIA (4).

To our knowledge, we have reported the first case of soy-dependent, effort-induced anaphylaxis. Physical exercise and consumption of processed foods containing soy proteins are trendy. Soy allergy in adults, and more specifically in association with exercise, may increase in the future.

*Division of Immunology and Allergy
Department of Internal Medicine
University Hospital
Rue Micheli-du-Crest 24
1211 Geneva 14
Switzerland
Tel. 223729372

Fax: 223739418

E-mail: ptamarcaz@hotmail.com

Accepted for publication 3 April 2001

Allergy 2001; 56:792

Copyright © Munksgaard 2001

ISSN 0105-4538

References

1. SICHERER SH, SIMPSON HA, BURKS AW. Peanut and soy allergy: a clinical and therapeutic dilemma. *Allergy* 2000;**55**: 515–521.
2. FOUCAUD T, MALMHEDEN YMAN I. A study on severe food reactions in Sweden – is soy protein an underestimated cause of food anaphylaxis? *Allergy* 1999;**55**:261–265.
3. SHADICK A, LIANG MH, PATRIDGE AJ, et al. The natural history of exercise-induced anaphylaxis: survey results from a 10 year follow-up study. *J Allergy Clin Immunol* 1999;**104**:123–127.
4. ROMANO A, DI FONSO M, GIUFFREDA F, et al. Diagnostic work-up for food-dependent, exercise-induced anaphylaxis. *Allergy* 1995;**50**:817–824.

Circadian rhythm of U-EPX

M. Schosser, P. Hoeppe*, K. Radon, D. Nowak

Key words: children; circadian rhythm; EPX.

● URINARY eosinophil protein X (EPX) is a marker of eosinophilic activation in patients with atopic diseases. It has been proposed as a noninvasive tool to monitor the activity and therapy of childhood asthma (1) that may be useful in studies on the effects of environmental pollution on asthma severity. Since little is known of the circadian variation of urinary EPX concentration, we here report data on the relationship between the time of the day when the urine samples were taken and urinary EPX levels in a group of children.

In the course of a study on the influence of environmental factors on the frequency of visits to a

pediatric practice, we determined urinary

Changes in eosinophil protein X unrelated to allergy.

eosinophil protein X (EPX) concentrations in 242 spot urine samples. Urinary EPX excretion was measured by ELISA in urine samples taken at various times between 8:50 a.m. and 7:10 p.m. on 55 different days during the summer of 1999. The children's ages ranged from 4 months to 18 years. Sixty-one of the patients suffered from doctor-diagnosed allergy, according to the parents' statements. Urinary EPX was expressed as the ratio to urinary creatinine measured by the enzymatic para-amino phenacetone (PAP) method ($\mu\text{g}/\text{mmol}$ creatinine) to correct for fluctuations in dilution. We compared mean EPX excretions of samples collected over five 2-h periods, using 95% confidence intervals (95% CI) for the mean. In addition, Spearman rank correlation was used.

EPX excretion in the urine samples decreased by the time of day. Spearman's correlation coefficient for all analyzed urine samples ($n=242$) with time of day was $r=-0.467$ ($P<0.001$). This correlation was slightly higher for the subgroup of patients with doctor-diagnosed allergy: $r=-0.492$ ($P<0.001$, $n=61$), but was also seen with the nonallergic children ($r=-0.449$, $P<0.001$, $n=181$). The means (95% CI) of the EPX excretion ($\mu\text{g}/\text{mmol}$ creatinine) for the five time periods are shown in Fig. 1. This figure illustrates a significant circadian rhythm of EPX excretion for children with and without allergies, with the lowest values between 1 and 5 p.m.

To our knowledge, this is the first study on the circadian variation of urinary EPX

excretion in a large sample of children with and without doctor-diagnosed allergy, with measurements at different times of the day. Overall, we found that urinary EPX was subject to a large circadian variation: EPX excretion in the morning was significantly higher than the afternoon excretion, reaching a plateau in the early evening. An investigation of a smaller group of 22 asthmatic children and 16 nonatopic, nonasthmatic controls conducted by a team from Freiburg, Germany (3), indicated such a tendency, which could now be confirmed in a larger sample of children. The children whose urine samples were used for the present investigation came to the pediatrician's practice for acute symptoms such as cough, cold, or earache. None of them had an acute asthmatic exacerbation or any other problem which would have been expected to be associated with strongly elevated EPX excretions (4). When one uses EPX as a tool to monitor disease activity and therapy, as in asthmatic patients, it is necessary to be aware of the obvious circadian variation of this parameter.

Acknowledgments We thank Dr Kilian-Kornell for her cooperation and the children and their parents for their

participation. This study was part of Marion Schosser's thesis for the degree of doctor of medicine.

*Institute and Outpatient Clinic for Occupational and Environmental Medicine Ziemssenstr. 1 D-80336 Munich Germany Tel. +49-89-5160-2466 Fax: +49-89-5160-3957 E-mail: Peter.Hoeppe@arbeits.med.uni-muenchen.de

Accepted for publication 22 March 2001
Allergy 2001; 56:792-793
Copyright © Munksgaard 2001
ISSN 0105-4538

References

1. GRIGG J, VENGE P. Inflammatory markers of outcome. Eur Respir J 1996; 9:16s-21s.
2. SMOLENSKY MH, REINBERG AE, MARTIN RJ, HAUS E. Clinical chronobiology and chronotherapeutics with applications to asthma. Chronobiol Int 1999;16: 539-563.
3. STORM VAN'S GRAVESANDE K, MATTES J, GRÜNTJENS T, et al. Circadian variation of urinary eosinophil protein X in asthmatic and healthy children. Clin Exp Allergy 1999;29:1497-1501.
4. LUGOSI E, HALMERBAUER G, FRISCHER T, KOLLER DY. Urinary eosinophil protein X in relation to disease activity in childhood asthma. Allergy 1997;52: 584-588.

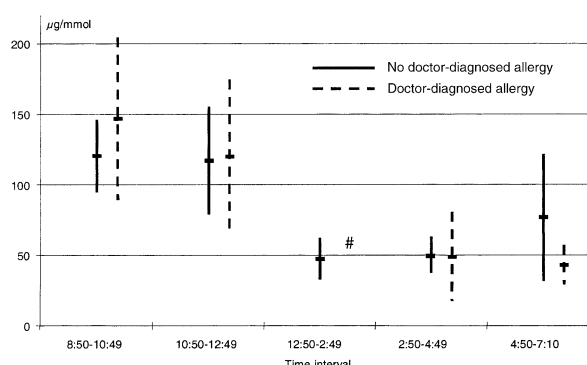


Figure 1. Mean (95% CI) urinary EPX excretion of subjects with and without doctor-diagnosed allergy. # Number of urinary samples of children with doctor-diagnosed allergy too low ($n=5$).