

GINA guidelines in Croatia

N. Tudoric*, D. Plavec, M. Kljajic-Turkalj, A. Sušac

Key words: asthma; guidelines; hospitalization; inhaled corticosteroids.

• BECAUSE OF a significant increase in asthma prevalence, widespread activities were undertaken in Croatia to implement the program of the Global Initiative for Asthma – GINA (1). These activities consisted of a series of workshops for general practitioners, continuing education for pharmacists, and “training for trainers” courses for chest physicians. Since 1996, the program has been held in all 29 subsidiaries of Croatian Medical Association, totaling 4080 participants, with distribution of more than 6000 translated GINA guidelines. Throughout the program, the early prescription of inhaled corticosteroids (ICS) and the importance of a stepwise approach in gaining long-term asthma control were emphasized (2).

It is difficult to measure the benefits of educational activities that aim mostly to increase general practitioners’ awareness of proper management of asthmatic patients. Attentive monitoring of changes in attitude towards prescribing recommended drugs is one possible means. Therefore, the present study aimed to investigate whether GINA implementation activities have succeeded in increasing the prescription of ICS in asthma.

How to evaluate the implementation.

Fig. 1 shows the manifold increase in prescription of ICS observed during the period 1991–2000. The utilization of ICS was expressed as a total weight (g), calculated by multiplying the number of drug units sold by the number of doses in each unit, and by the weight of a single dose. ICS were expressed as weight of beclomethasone, using an equivalent weight basis for other ICS.

We hypothesized that increased prescription of ICS would improve the global control of asthma, which could be

reflected in a decreased hospital admission rate (3). Therefore, the total dispensation of ICS was correlated (piecewise linear regression with breakpoint) with hospitalization rates for asthma (hospital discharge data sets 1991–2000, Croatian Institute for Public Health). The increased prescription of ICS was found to correlate significantly with the trend for reversal in hospitalization rates for asthma (with breakpoint in 1997, $r=0.955$, $P<0.01$).

Our results suggest that widespread educational activities at national level might help in changing attitude toward the treatment of asthma.

*Department for Internal Diseases
Clinical Hospital Dubrava
Avenija G. Šuška 6
10000 Zagreb
Croatia
Tel/Fax: 385 1290 2488
E-mail: neven.tudoric1@zg.tel.hr

Accepted for publication 17 January 2002
Allergy 2002; 57:556–557
Copyright © 2002 Blackwell Munksgaard
ISSN 0105-4538

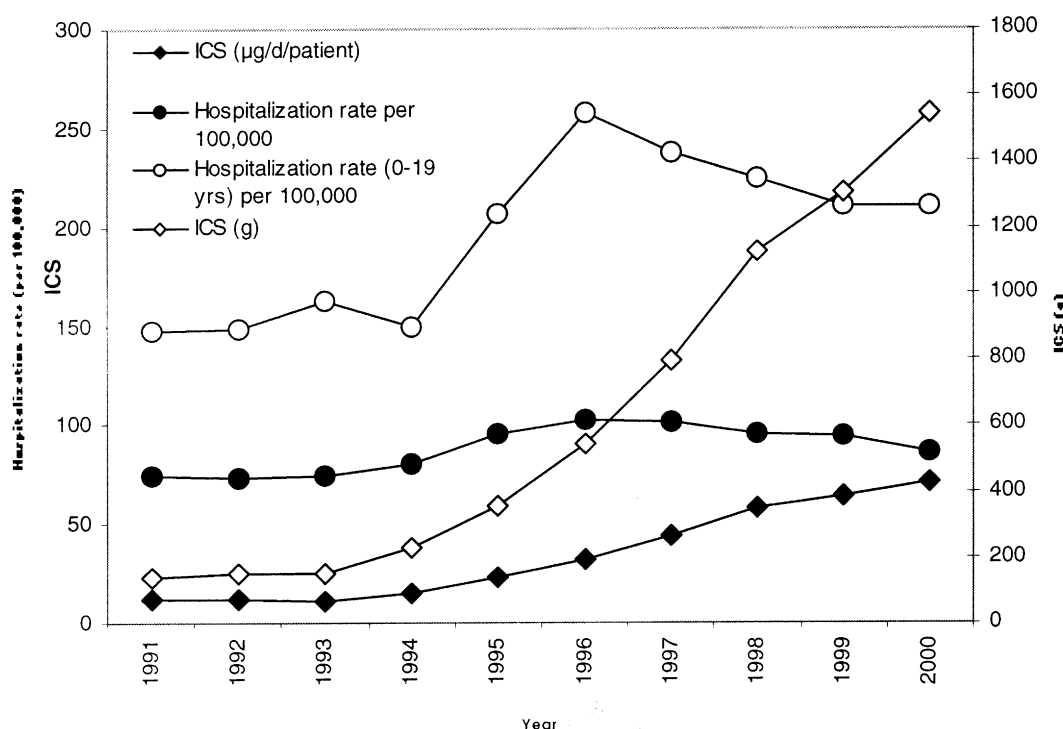


Figure 1. The prescription of inhaled corticosteroids (ICS) and hospitalization rates for asthma in Croatia. During the observed period 1991–2000, total dispensation of ICS (shown in grams, open squares), as well as daily utilization of ICS per patient (mcg/day/patient, closed squares) increased many-fold. The increased use of ICS was found to correlate significantly with the trend for reversal in hospitalization rates for asthma at a national level (closed circles), and in the group 0–19 years (open circles), with the breakpoint in 1997 ($r=0.955$, $P<0.01$).

References

1. NATIONAL HEART LUNG AND BLOOD INSTITUTE, WORLD HEALTH ORGANIZATION GLOBAL INITIATIVE FOR ASTHMA. Global strategy for asthma management and prevention: NHLBI/WHO workshop report. Bethesda, MA: National Institutes of Health, 1995, 1–176.
2. BUSSE WW. Inflammation in asthma: the cornerstone of the disease and target of therapy. J Allergy Clin Immunol 1998;**102**:S17–S22.
3. BLAIS L, ERNST P, BOIVIN JF, SUISSA S. Inhaled corticosteroids and the prevention of readmission to hospital for asthma. Am J Resp Crit Care Med 1998;**158**:126–132.

Whole bee for diagnosis of honey allergy

M. Ibero*, M. J Castillo, F. Pineda, R. Palacios, J. Martínez

Key words: honey allergy; IgE antibody; whole-bee body.

● POLLEN PROTEINS, mainly from *Compositae* plants, and glandular proteins from *Hymenoptera* insects are, as far as we know, the main allergens involved in allergy to honey (1–4). Honey, sac bee venoms, and honeybee heads are the main extract sources to prepare them (1,3,4). Apart from the bee venom extracts which can be found as high quality standardized reagents, the other two sources are raw materials; these are difficult to extract because of the relatively low protein content and variability in the composition of honeys, or difficulty in manipulating the bees in order to separate the structures containing the glandular tissues.

A 12-year-old patient was referred to our department (Hospital de Terrassa, Barcelona) with a clinical history of rhinitis. Allergen-specific IgE antibody and skin prick tests were positive to grass

pollens and *Chenopodium*, *Olea* and *Parietaria* pollens.

The patient's mother referred to two different episodes of angioedema with dysphagia, dysphonia, and dyspnea a few minutes after the ingestion of honey.

IgE antibody to honey and bee venom could not be found, but prick-by-prick with artisan honey was positive (>3 mm wheal diameter).

Honey extract was obtained from local artisan honey as previously reported (1), and the protein fraction was obtained by ammonium sulfate precipitation (DIATER Laboratories).

Prick test with the above-mentioned honey extract elicited a positive response (4 mm wheal diameter).

Whole-body bee extract was obtained from exhaustively washed frozen bees without venom sacs, by mechanical homogenization, aqueous extraction, dialysis and lipophilization (DIATER Laboratories).

SDS-PAGE IgE-immunoblot (Fig. 1) with honey extract using serum from a patient allergic to honey, and serum from a patient allergic to pollen, showed in both cases two components of 57 kDa and 29 kDa, respectively. Bauer et al. (4) found similar results to those described here with honey extracts. However, results of de la Torre et al. (1) do not coincide with ours regarding the size of components revealed, but they do report a similar phenomenon of IgE binding in serum from a patient allergic to honey and in controls. Inhibition of the immunoblotting to honey with whole-body extract becomes negative, indicating antigenic similarity

between the honey components revealed and proteins of the honeybee.

SDS-PAGE IgE-immunoblot with whole-body extract showed a high number of IgE binding components (57, 52, 38, 28, 26, 23, 20, 18 and 16 kDa). A similar pattern was found by Bauer et al. (4) in one patient when sunflower honey extract was used.

In spite of the fact that further studies are needed to analyze the nature and the origin of proteins causing honey allergy, the results reported here, and a review of the relatively scarce literature, suggest that bee products are the main cause of food allergy to honey.

*Servei d'Allergia
Hospital de Terrassa
Ctra. Torrebónica, s/n
08227-Terrassa
Barcelona
Spain
E-mail: CEAl-lergia@cstdt.es

Accepted for publication 14 January 2002
Allergy 2002; 57:557–558
Copyright © 2002 Blackwell Munksgaard
ISSN 0105-4538

References

1. DELA TORRE F, GARCIA JC, MARTINEZ A et al. IgE binding proteins in honey: discussion on their origin. Invest Allergol Clin Immunol 1997;**7**:83–89.
2. LEUN R, THIEN FCK, BALDO B et al. Royal jelly induced asthma and anaphylaxis: clinical characteristics and immunological correlations. J Allergy Clin Immunol 1995;**96**:1004–1007.

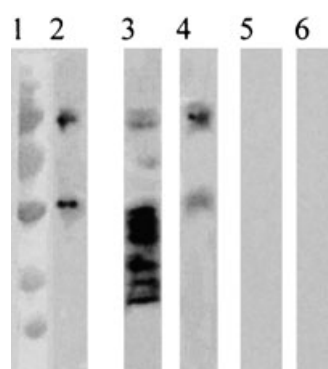


Figure 1. SDS-PAGE IgE-Immunoblot. Lane 1: MW marker. Lane 2: honey extract and serum from a patient allergic to honey. Lane 3: Whole-body bee extract and serum from a patient allergic to honey. Lane 4: honey extract and serum from a pollinic patient not allergic to honey. Lane 5: whole-body bee extract and serum from a pollinic patient not allergic to honey. Lane 6: honey extract and serum from a patient allergic to honey inhibited with whole-body extract.