

Detection of Urticaria with Food Additives Intolerance by Means of Diet¹

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Abstract: A diet free of salicylates, benzoates and azo dyes was applied to 158 patients with chronic urticaria. On the basis of the results of this diet, 50 persons were recognized as 'sensitive' to food additives. Psychosomatic examination of the latter patients demonstrated that they do not differ significantly from the remaining ones as regards exacerbations of skin changes by psychological stress. On the other hand, the coexistence of a frustrating situation at the beginning of appearance of skin changes is markedly less frequent in persons 'sensitive' to food additives.

Patients are described in whom intolerance to food additives occurred together with hypersensitivity to drugs or some kinds of food.

For detection of aspirin and food additives intolerance usually a challenge test battery is applied containing antiphlogistics, preservatives and dyes to patients with chronic urticaria [*Michaëlsson and Juhlin, 1973; Doeglas, 1975; Thune and Granholt, 1975; Juhlin, 1976; Warin and Smith, 1976; Michaëlsson, 1977*]. The present study was undertaken to establish [1] how frequently a diet deprived of salicylates, benzoates and azo dyes can reveal food additives intolerance in patients with chronic urticaria and (2) what additional factors may influence the improvement of the patient's condition due to this diet.

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Material and Methods

A total of 158 patients (85 women and 73 men) with urticaria lasting at least 2 months, who recently had suffered of daily eruptions for not less than 1 week were examined. The patients were allowed to eat, *ad libitum*, bread, rice, potatoes, cottage cheese and fresh meat (with the exception of poultry). The only fat they used was vegetable oil, and for drinking, tap water or soda water without any fruit syrup. The special diet was applied for 5 days, the patients receiving no medication. If a marked improvement of their condition was noted for the next 3–5 days they were allowed to eat a normal diet while they were watched for any exacerbation. In the latter case they returned to the first diet. Urticaria from additives was diagnosed when the changes in the patient distinctly improved during the two periods of special diet and were exacerbated when they ate normally. These patients were referred to as 'sensitive' to food additives.

In 52 of patients with chronic urticaria (36 women and 16 men) psychosomatic investigations were performed involving in all a psychiatric interview with particular consideration of sustained situations of conflict preceding the onset of symptoms and the effect of psychologic stresses on the further course of the disease. The psychic state of all was evaluated clinically. The details are given elsewhere [Czubalski *et al.*, 1976]. A control group consisted of 30 patients (20 women and 10 men) with otitis media or tonsillitis diagnosis, in the pathogenesis of which psychologic factors play no major role. The control group was similar in age, sex ratio, education and places of residence to that of the 52 patients with chronic urticaria.

Results

Incidence of Urticaria from Food Additives. From among the 158 with chronic urticaria, remission was observed in 53 during the first period of diet. 2 of these patients had no exacerbation after returning to ordinary food. The second period of diet was applied to 51 subjects. 1 man who during the first period of diet had markedly improved did not note any effect during the second period. Finally urticaria from food additives was diagnosed in 50 patients (29 women and 21 men). Among the patients only 6 realized before the test that some kinds of food (mainly tinned and fish) exacerbate their skin changes.

Psychological Factors. During the first and second period of special diet, 18 patients with urticaria from food additives noticed that psychological stresses elicit a short-lasting exacerbation of urticaria. In connection with this observation, 20 patients (14 women and 6 men) with urticaria from food additives and 32 patients (22 women and 10 men) in whom the diet brought no improvement were subjected to psychosomatic examination. The results are shown in table I. As seen the percentage of subjects with exacerbation

Table I. Results of psychosomatic investigations

	Number of patients	Symptoms provoked by emotions		Coincidence of a frustrating situation with the onset of symptoms	
		persons	%	persons	%
Patients 'sensitive' to food additives	20	15	75.0	8	40.0
Patients 'nonsensitive' to food additives	32	28	87.5	28	87.5
Controls	30	-	-	3	10.0

of skin changes under the influence of psychological factors is similar in both groups. On the other hand, in patients 'sensitive' to food additives the coincidence of a frustrating situation with the onset of symptoms is less frequent.

Other Factors Exacerbating Urticaria from Food Additives. Among the 50 patients with urticaria from food additives, 28 (56%) remembered that aspirin intake had exacerbated their skin changes. Among our patients we noted no persons in whom aspirin had exacerbated urticaria and who showed no improvement after the diet applied; nor were there any patients who felt an improvement after the diet and who tolerated aspirin in the course of urticaria.

1 patient during the second period of special diet suddenly had an exacerbation of urticaria. It was found that she had been to see the dentist who applied Apernyl (Polfa) in her dental alveoli. The composition of this drug is as follows: acidum acetylosalicylicum 0.32, propyl parabenum, 0.02, massa tabul. 0.02.

In another patient urticaria appeared for the first time towards the end of a cure with Phanquinone (Entobex; Ciba-Geigy). When the drug was discontinued the skin changes receded, but they returned in the middle of the second course of this therapy and since then they became chronic lasting for 7 months until the special diet was applied.

1 patient with intolerance to food additives was also hypersensitive to chicken eggs. Each egg consumption elicited vomiting and wheals. This hypersensitivity lasted since early childhood, whereas daily eruptions of urticaria developed at the age of 36 years.

Discussion

In the investigations described here urticaria from food additives was almost as frequent in men (29.5%) as in women (33.3%). Other authors have not observed any effect of sex on the incidence of these skin changes either [Doeglas, 1975].

The percentage of subjects sensitive to food additives among the observed patients with chronic urticaria was 31.6, thus it was not high. A review of the literature indicates that in the particular centers this percentage varied from 21 to 75 [Doeglas, 1975]. Using provocation tests some of the authors observed reactions in 35 of 52 patients with urticaria [Michaëlsson and Juhlin, 1973], in 16 of 50 patients [Doeglas, 1975], in 62 of 100 [Thune and Granholt, 1975] and in 66 of 111 patients [Warin and Smith, 1976]. Comparison of these results is difficult since the challenge test batteries of the particular authors differed, including in some cases even penicillin and yeast extract [Warin and Smith, 1976]. Among the subjects reacting to the battery an appropriate diet brought remission or noticeable improvement in 62% [Thune and Granholt, 1975], in 75% [Warin and Smith, 1976] or in 81% of patients [Ross *et al.*, 1976].

The question arises how can the lack of improvement after the special diet in some patients with intolerance to food additives be interpreted. It would seem that one of the causes is exacerbations after psychological stress. Attention has been called already earlier to this fact [Rudzki, 1977], and the present studies demonstrated that exacerbations after psychological stress are almost equally frequent in patients 'sensitive' as in those 'nonsensitive' to food additives. This percentage is, moreover, similar to that in cholinergic urticaria (76.9%) and dermatographism (83.0%) [Czubalski and Rudzki, 1977]. On the other hand, the coexistence of a frustrating situation with the onset of skin changes (considered as one of the causes of chronic urticaria – Czubalski and Rudzki [1970]) is distinctly less frequent in persons 'sensitive' to food additives than in the remaining patients with chronic urticaria. Besides inaccurate observation of the diet, exacerbations under the influence of psychological shock are thus a factor which depresses the percentage of patients with improvement after the diet. The quoted data indicate that sometimes (probably very rarely) hidden sources of aspirin or hypersensitivity to other drugs or food may be another factor. Moreover, when diagnosing urticaria with 'sensitivity' to food additives without any provocation test, we cannot exclude patients with immediate hypersensitivity to some foods or with urticaria from foods known as histamine releasers.

However, such cases are extremely uncommon among patients with chronic urticaria, and consequently they could not markedly influence the present results.

Owing to psychological factors, however, some patients nonsensitive to food additives may, under the influence of suggestion, show improvement on a diet free of salicylates, benzoates and azo dyes. The possibility of suggestion in reactions to the challenge test battery has been pointed out several times [Warin and Smith, 1976; Juhlin, 1976; Zeiss and Locky, 1976]. Therefore, in order to reduce the number of mistakes connected with suggestion and with spontaneous improvement, we recommend two courses of the special diet. Nevertheless, this does not warrant complete protection from the influence of suggestion as it is known, for instance, that in patients with chronic urticaria the suggestive effect of a placebo continues sometimes even when it is administered as many as three times [Rudzki *et al.*, 1970]. Furthermore, there may be states in which the provocation test with food additives (e.g. with tartrazine) enhances the lesions, and diet fails to cause improvement. For example, it has been reported that patients with idiopathic urticaria can exhibit the presence of tartrazine-specific IgD and IgE antibodies [Weliky *et al.*, 1978]. In this connection it is of interest that the inhibitory effects of tartrazine and aspirin on platelet aggregation are more pronounced in atopic patients [Gallagher *et al.*, 1978]. Perhaps all these causes have somewhat contributed to the striking observation that 27 patients exhibited no relationship between the double-blind challenge test (85 mg tartrazine or placebo) and clinical history of intolerance to this food additive [Bernstein *et al.*, 1978].

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