

# **A clinico-epidemiological study of allergens in patients with dermatitis**

Sir,

Allergic contact dermatitis is a cell-mediated inflammatory skin reaction to allergens coming in direct contact with the skin. Properly applied and correctly interpreted patch tests are at present the only scientific “proof” of allergic contact dermatitis.<sup>[1]</sup>

In India, contact dermatitis is one of the major occupational health problems, with an incidence of 4-7%. The economic and social consequences of contact dermatitis are significant; 40-60% of occupational absenteeism is attributed to some form of contact dermatitis.<sup>[2]</sup> Incidence can vary depending on the degree of socioeconomic and industrial development in the area as well as the interest of the dermatologist in allergic contact dermatitis.<sup>[3]</sup> This study was carried out to identify the prevailing pattern of allergens that cause contact dermatitis; this would serve as an important database.

From September 2000 to December 2001, patients with suspected allergic contact dermatitis were recruited by purposive sampling and after obtaining written informed consent. Detailed clinical history was obtained using a pre-tested structured case-record form. The subjects were then clinically examined and patch tested with the Indian Standard Series, containing 29 allergens, supplied by Systopic Pharmaceutical Lab<sup>®</sup>, New Delhi. Chambers were applied on clinically normal skin of the upper or lower back of the patient. Readings were taken at 48-72 h and 96 h and interpreted according to the International Contact Dermatitis Research Group criteria.

Eighty-five patients were recruited - 37 (43.5%) males and 48 (56.5%) females (male: female ratio, 0.7:1). Their mean age was 34.3 years, with a standard deviation of 11.8 years (range, 9 years to 67 years).

The commonest symptoms were itching in 76 (89.4%) and eruptions in 59 (69.4%); the former was moderate to severe in nature. The mean duration of symptoms was 3.4 years, with a standard deviation of 4.9 years. The majority of the patients had remissions and exacerbations lasting from days to months.

There was positive history of allergy to a specific substance in 45 (52.9%) patients. The symptoms were acute in 48 (56.5%) patients, chronic in 22 (28.2%) and acute on chronic in 13 (15.3%). The hands and feet were the commonest sites involved, in 12 (14%) patients.

Out of 85 patients patch tested, 55 (64.7%) patients were positive for one or more allergens, while 29 (34.1%) were negative and in one patient, the patch was removed because of intolerable itching. Our positivity rate was higher than that obtained by Bajaj *et al.*<sup>[5]</sup> (58.6%) and Pandhye *et al.*<sup>[6]</sup> (57.5%).

Out of the 55 patients who were positive on patch testing, the majority, i.e., 41 (74.5%), were positive for multiple allergens and 14 (25.5%) were positive for single allergen. Out of 168 allergic reactions, the majority of the reactions - i.e., 71 (42.4%) - were positive on both day 2 and day 4; 39 (23.2%) were positive on day 2 only; and 29 (17.3%) on day 4 only. These figures are slightly lower than the results obtained by Shehade *et al.* who found that 24% of their 4210 allergic reactions studied were negative on day 2 but turned out to be positive on day 4. This means that 17.3% of the cases would have been missed if only the day 2 readings had been taken into consideration. Hence both day 2 and day 4 readings are significant from the diagnostic point of view.

The commonest group of allergens to which positive tests were observed was cosmetics, accounting for 52 (37.4%) reactions; 15 (28.8%) were in housewives,

followed by 14 (26.9%) in teachers and each of those engaged in business. Positive reactions to rubber allergens were higher among those engaged in business. These findings are in accordance with the results of the study conducted by Minocha *et al.* (1993).<sup>[8]</sup> Among housewives, they found a positive test to metal allergens in 8.2% and to rubber and leather allergens in 23.5%. In our study, a positive test to metals among housewives was seen in 38% and to rubber and leather allergens in 17.8%. Among housewives in our study, the positivity to cosmetics was much lower (28.8%) than in their study (63.6%). Positive tests were most frequently observed to nickel sulfate, 14 (10.1%), followed by potassium dichromate, 12 (8.6%).

Patch testing is a safe procedure as it was seen that 75 (88.2%) patients had no adverse reactions; only 6 (7.1%) had a reaction to the plaster and 3 (0.5%) had excited skin syndrome. Of the 85 patients treated and counseled, the procedure had a positive impact on the condition of dermatitis in 35 (41.2%) patients; and in 29 (34.1%) patients, the symptoms were relieved. Thus patch testing is an effective tool to diagnose the etiology of allergic contact dermatitis early and to prevent chronicity of the condition.

We believe that the patch test plays an important role in finding the etiology of contact dermatitis at an early stage to prevent chronicity of the condition. We recommend that the standard protocol of taking readings on day 2 and day 4 should be followed while performing a patch test. Labeling of the contents of cosmetic products should be mandatory so that specific allergens can be avoided in patients with allergy to cosmetic products.

## REFERENCES

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## ANNOUNCEMENT

### **CODFICON 2006**

**(First National Conference of Contact and Occupational Dermatoses Forum of India)**

**Dates: 3-5 November 2006**

3<sup>rd</sup> November: Pre-conference CME at LTMG Hospital

Theme of CME: Art and Science of Patch Testing

4<sup>th</sup> and 5<sup>th</sup> November: Conference at Balabhai Nanavati Hospital Auditorium

Organizing Chairperson: Dr. H R Jerajani, Prof. and Head, Dept of Dermatology, LTM Medical College and LTM General Hospital, Sion, Mumbai-22

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