

Role of stressful life events in induction or exacerbation of psoriasis and chronic urticaria

S. K. Malhotra, Vivek Mehta

Department of Dermatology, Venereology and Leprology, GGS Medical College and Hospital, Faridkot (Punjab), India

Address for correspondence: S. K. Malhotra, SMO House No. 3, Mental Hospital Campus, Amritsar, Punjab, India.

E-mail: poojavivekmehta@yahoo.co.in

ABSTRACT

Background: The possibility of a causal influence of emotional stress, especially of stressful life events, on the course of various skin diseases has long been postulated. Previous reports addressing its influence on skin psoriasis and chronic urticaria have been mainly anecdotal. **Objective:** The aim of this study was to evaluate the stressful events of life within 1 year preceding onset or exacerbation of skin disease in patients of psoriasis vulgaris and chronic urticaria. **Method:** Fifty consecutive clinically diagnosed psoriasis patients and 50 consecutive clinically diagnosed chronic urticaria patients were examined clinically and administered Gurmeet Singh's presumptive stressful life events scale. **Results:** Stressful life events were seen in 26% of the patients in the psoriasis vulgaris group and 16% of the patients in the chronic urticaria group within 1 year preceding onset or exacerbation of skin disease. In the psoriasis vulgaris group, the most common stressful life event seen was financial loss or problems (8%), followed by death of close family member (4%), sexual problems (4%), family conflict (2%), major personal illness or injury (2%), and transfer or change in working conditions (2%), failure in examinations (2%), family member unemployed (2%), illness of family member (2%), getting married or engaged (2%), miscellaneous (2%). In the chronic urticaria group, the most common stressful life event seen was death of a close family member (6%), followed by family conflict (2%), financial loss or problems (2%), sexual problems (2%), illness of family member (2%), getting married or engaged (2%), trouble at work with colleagues, superiors, or subordinates (2%), going on a pleasure trip (2%) and extramarital relations (2%). **Conclusion:** Psychological stress plays a significant role in triggering or exacerbating dermatological diseases. Our study indicates the role of relaxation therapies and stress management programs in chronic diseases such as psoriasis and chronic urticaria. Psychological interventions can help individuals to reinterpret events and develop strategies to cope with stressful events, thus decreasing morbidity due to these diseases.

Key Words: Chronic urticaria, Psoriasis, Stress

INTRODUCTION

The skin has serious psychological implications, playing a cardinal role as a sensory organ in socialization processes from early infancy throughout the entire life cycle, having central importance as an organ of communication, being responsive to a variety of emotional stimuli and greatly affecting an individual's body image and self-esteem. The skin and the central nervous system are embryologically related as the epidermis and the neural plate both derive from embryonic ectoderm. The stress might act as a

precipitating factor in onset or exacerbation of skin disease through psychosomatic mechanisms.^[1]

Stress affects several skin diseases such as psoriasis, urticaria, pruritus, alopecia areata, acne, and eczema; but patients of chronic urticaria and psoriasis were studied because both are chronic diseases with remissions and relapses and provide a platform for examining the role of stress in onset or exacerbation of skin disease. We investigated the presence of stressful life events within 1 year preceding onset or exacerbation of skin disease in patients of psoriasis vulgaris

How to cite this article: Malhotra SK, Mehta V. Role of stressful life events in induction or exacerbation of psoriasis and chronic urticaria. Indian J Dermatol Venereol Leprol 2008;74:594-9.

Received: July, 2007. **Accepted:** March, 2008. **Source of Support:** Nil. **Conflict of Interest:** None Declared.

and chronic urticaria using Gurmeet Singh's presumptive stressful life events (PSLE) scale.^[2]

METHODS

This study comprised 50 consecutive patients each of psoriasis and chronic urticaria, aged between 14 and 65 years, suffering from disease for at least 6 months and attending our outpatient department. All the patients were subjected to detailed examination, including the elicitation of dermatological and psychiatric complaints.

All the patients were asked to provide socio-demographic data, medical history, and family histories. Other questions included the duration of disease, age of onset of the disease, any treatment taken, and use of psychotropic drugs. Skin, hairs, mucosal involvement, and nail changes were recorded. They were asked to indicate if they believed their skin problem began after an important stressful event in their lives and if so, to describe it briefly. They were also asked to indicate whether the skin problem began within 1 year, 6 months, or 1 month preceding onset or exacerbation.

Presumptive stressful life events (PSLE) scale

Singh *et al.*^[2] developed this scale suitable for assessing stressful life events for Indian patients in 1981 by using open-ended questionnaire on a sample of 200 adult subjects. It was based on fruitful collaborations of Holmes and Rahe,^[3] who believed that some kind of a list of commonly encountered stressors would be more useful than the relatively unregulated process of taking an unstructured history. After considerable research, they developed a list of 51 life events relevant to Indian conditions, ranging in severity from death of a spouse to going on a pleasure trip/pilgrimage. Scale items are classified into desirable, undesirable, or ambiguous; and personal or impersonal. The scale was used in a modified way for the present study, based on the modified version of the social readjustment rating scale used in earlier dermatological studies.^[4] The subjects were asked about each event on the checklist that they had experienced over the preceding 1 year. The stress associated with each event was rated on a 4-point scale with rating of '1' denoting 'not at all,' a rating of '2' denoting 'slight degree of stress,' a rating of '3' denoting 'moderate degree of stress,' and a rating of '4' denoting 'a great deal of stress.'

Statistical analysis

The data thus generated was summarized using descriptive statistics. For the categorical data, Mann-Whitney test was

done to determine whether the difference among the 2 groups was significant.

RESULTS

There were 50 subjects in psoriasis vulgaris group and 50 subjects in chronic urticaria group [Table 1]. In Table 2, both the groups were compared for average age. The average age of subjects in the psoriasis group was 37.98 ± 12.840 years, and it was 36.30 ± 13.248 years in the chronic urticaria group.

Figure 1 shows that stressful life events were present in 26% of the patients in psoriasis vulgaris group, and 16% of the patients in the chronic urticaria group. Mann-Whitney test showed no statistical difference between the 2 groups (Mann-Whitney U = 1125.00; Z = -1.221; $P > 0.05$, not significant).

In the psoriasis vulgaris group, the total number of stressful life events within 1 year preceding onset or exacerbation of disease was 16; out of these life events, 56.25% occurred within 6 months and 31.25% occurred within 1 month preceding the onset or exacerbation of disease [Figure 2]. In the chronic urticaria group, the total number of stressful life events within 1 year preceding onset or exacerbation of disease was 11; out of these life events, 63.6% occurred within 6 months and, 45.4% occurred within 1 month preceding the onset or exacerbation of disease.

Figure 3 shows the types of stressful life events seen in both groups. In the psoriasis vulgaris group, the most common stressful life event seen was financial loss or problems

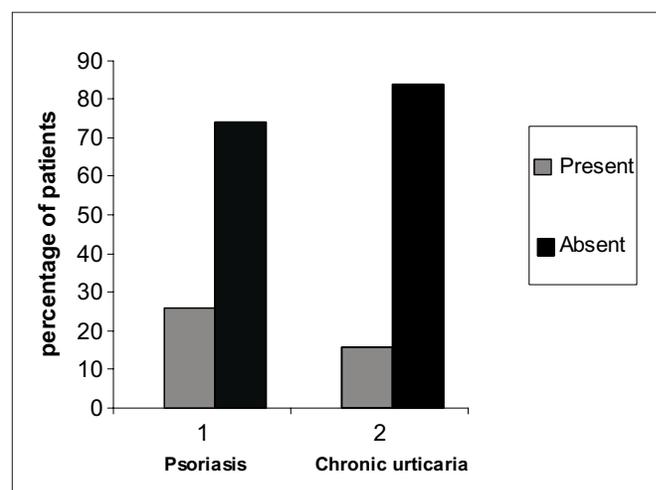


Figure 1: Stressful life events within 1 year preceding onset or exacerbation of skin disease in patients of psoriasis and chronic urticaria

Table 1: Demographic features

Demographic features	Psoriasis vulgaris		Chronic urticaria	
	%	N*	%	N*
Gender				
a) Male	86	43	44	22
b) Female	14	7	56	28
Place currently living				
a) Urban	36	18	30	15
b) Rural	64	32	70	35
Marital Status				
a) Unmarried	14	7	26	13
b) Married	86	43	66	33
c) Widow / Widower	0	0	8	4
Occupation				
a) Professional / Semiprofessional	10	5	4	2
b) Clerk, Shopkeeper, Farmer, Skilled Worker	60	30	38	19
c) Semi/ Unskilled Worker	8	4	16	8
d) Retired	0	0	0	0
e) Unemployed	8	4	6	3
f) Student	4	2	10	5
g) Housewife	10	5	26	13
Education Levels				
a) Illiterate	26	13	30	15
b) Primary	8	4	12	6
c) High School	56	28	48	24
d) College Level	10	5	10	5

(8%), followed by death of close family member (4%), sexual problems (4%), family conflict (2%), major personal illness or injury (2%), transfer or change in working conditions (2%), failure in examinations (2%), family member unemployed (2%), illness of family member (2%), getting married or engaged (2%) and miscellaneous (2%). In the chronic urticaria group, the most common stressful life event seen was death of close family member (6%), followed by family conflict (2%), financial loss or problems (2%), sexual problems (2%), illness of family member (2%), getting married or engaged (2%), trouble at work with colleagues, superiors, or subordinates (2%), going on pleasure trip (2%) and extramarital relations (2%).

Mean stress score per patient who experienced stressful life event was higher in the psoriasis vulgaris group (2.812) as compared to the chronic urticaria group (2.727).

DISCUSSION

Psychological factors precipitate, and contribute to, the morbidity of many psychosomatic disorders. The new multidisciplinary field of psychoneuroimmunology has

investigated the role of endocrine, nervous, and immune systems. Psychoneuroimmunologists frequently relate stressful life events as prime examples of psycho-social factors which affect the nervous, endocrine, and immune systems.^[5] The body’s response to stress is mediated by hypothalamus, pituitary, cerebral cortex, and the limbic

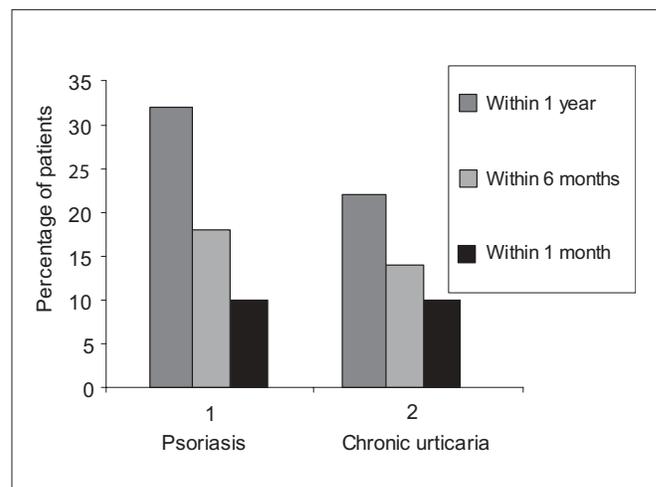


Figure 2: Total number of stressful life events within 1 month, 6 months, and 1 year preceding onset or exacerbation of disease in psoriasis and chronic urticaria patients

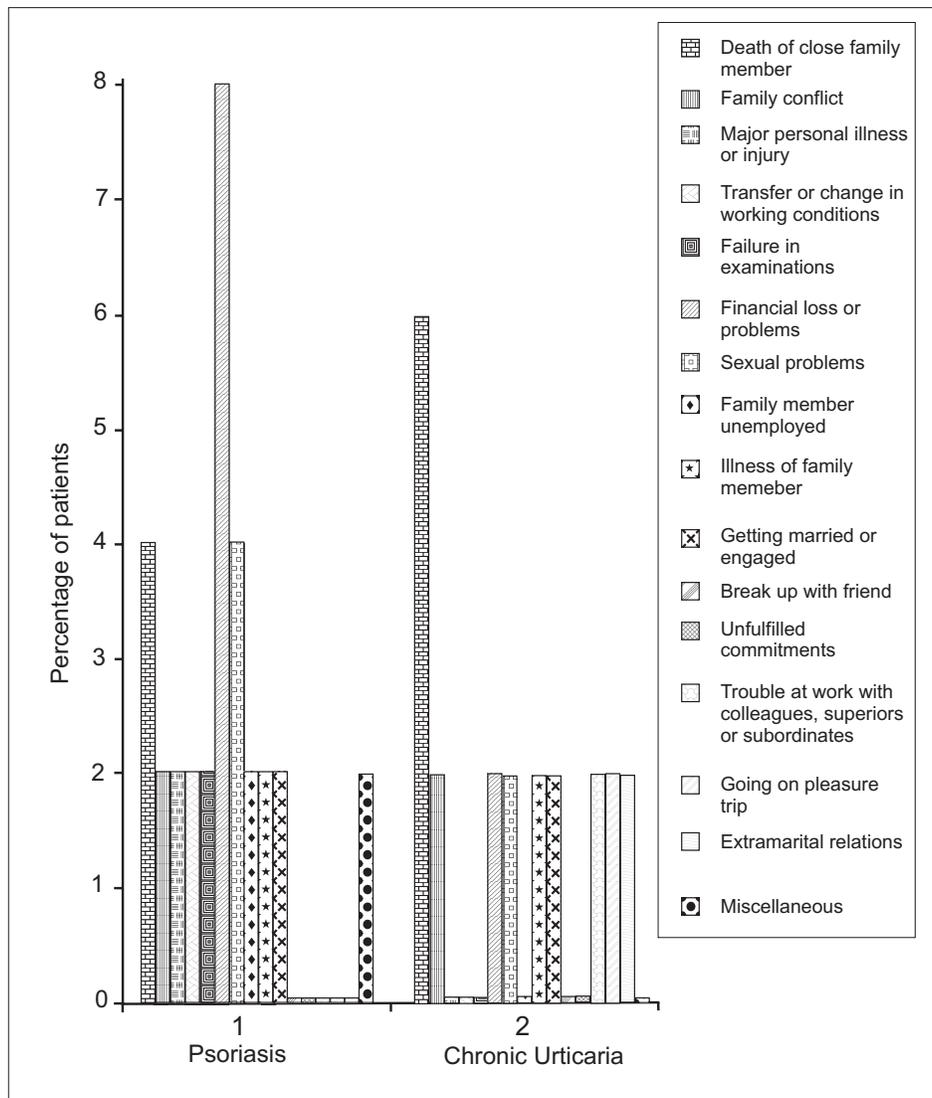


Figure 3: Types of stressful events seen within 1 year preceding onset or exacerbation of skin disease in psoriasis and chronic urticaria patients

system, in addition to the adrenal gland, as proposed by Selye.^[6] In addition to classic stress response involving increased levels of neuroendocrine hormones and autonomic neurotransmitters,^[7] stress also affects the immune system. In humans, stress results in decreased levels of natural killer-cell cytotoxicity, depressed mitogenic responses in lymphocytes, increased serum immunoglobulin A levels, enhanced neutrophil phagocytosis, and activation of interferon synthesis in lymphocytes.^[8]

Stressful life events may affect the onset or exacerbation of some skin disease. Estimates of proportion of psoriasis patients whose disease is affected by stressful events vary from 40% to 80%^[9] depending on how stress is defined (acute or chronic) and measured (by self reports or responses on standardized checklists). Not many studies

have been done to elicit the role of stressful life events in chronic urticaria, but the results of available studies vary from 40% to 90%.^[10]

In our study, stressful life events were seen in 26% of the patients in the psoriasis vulgaris group and 16% of the patients in the chronic urticaria group within 1 year preceding onset or exacerbation of skin disease. There was no statistical difference found between the 2 groups. Our findings in psoriasis patients are consistent with those of the other studies, which show substantial percentage of patients reporting stressful life events before the disease onset. Baldero^[11] found that 90% of psoriatic patients reported at least 1 event within 6 months preceding onset of illness as compared to 35% of the controls; and in our study, 18% of psoriatic patients experienced at least 1

stressful life event within 6 months preceding onset and exacerbation of disease. Polenghi *et al.*^[12] found that 79% of the psoriatic patients experienced stressful life events within 1 year preceding onset of illness. Lyketsos *et al.*^[13] found that psoriasis patients scored significantly higher than controls in stress experienced during the year preceding the onset or exacerbation of disease.

Many studies have reported relationship between onset of chronic urticaria and stressful life events. Rees,^[14] in a study, reported that stressful life situations were associated with onset of symptoms in 51% of their 100 patients with chronic urticaria and angioedema as compared to 8% of surgical controls; and Michaelsson^[15] in a survey of 43 patients of chronic urticaria found that increased mental tension and fatigue were reported as the main exacerbating or precipitating factors in 77% of the sample.

In our study, it was found that maximum number of stressful life events occurred within 6 months preceding onset or exacerbation of disease, and significant number of stressful life events occurred within the preceding 1 month. One study^[16] reported that this incubation period was between 2 days and 1 month in 96% of the cases. Specific stress within a month preceding the first attack was recalled by 39% of the patients; and in our study, 10% of patients experienced a stressful life event within 1 month preceding onset or exacerbation of psoriasis vulgaris.

Polenghi *et al.*^[17] in a study, found that 72% of the 76 men and 71% of 24 women with psoriasis reported stressful life events during the year preceding the onset of their psoriasis, with 25% of the whole sample reporting stressful life events during the month preceding the onset of disease. Findings were consistent but high as compared to our study, in which 26% of the patients experienced a stressful life event within 1 year preceding onset or exacerbation of psoriasis and 10% of the patients experienced stressful life event during the month preceding onset or exacerbation of skin disease.

Fava *et al.*^[8] found that patients with psoriasis (80%) and chronic urticaria (90%) were exposed to stressful life situations before disease onset and suffered from psychological distress (anxiety, depression, inadequacy) significantly more than those with fungal infections.

Seville^[18] found that major interpersonal upset within the family group was the most common stressful life event observed within 1 month preceding the first attack of psoriasis; and in our study, the most common stressful

life event within 1 year preceding onset or exacerbation of psoriasis was financial loss or problems. In the study by Pacan *et al.*^[19] many patients recalled a significant stressful event (e.g., interpersonal stress within family, death or hospitalization of close relatives, accidents, examinations, and sexual assault) within 1 month preceding the first episode of psoriasis.

For psoriasis patients, the most common types of life events were family upsets (such as bereavements) and work or school demands, but persistent difficulties were also common. There was no relationship between the severity of stress and time of onset or exacerbation.

The total stress scores of stressful life events experienced by psoriasis vulgaris and chronic urticaria groups were also compared, and it was found that the total stress score was higher in the psoriasis vulgaris group as compared to the chronic urticaria group. There was no statistical difference found between the 2 groups with respect to total stress scores. Mean stress score per patient who experienced stressful life event was equivalent in the psoriasis vulgaris group (2.812) and the chronic urticaria group (2.727).

Overall, these results support the view that psychological stress plays a significant role in triggering or exacerbating dermatological diseases. Our study indicates that there may be a role of relaxation therapies and stress management programs in chronic diseases such as psoriasis and chronic urticaria. Psychological interventions can help individuals to reinterpret events and develop strategies to cope with stressful events, thus decreasing morbidity due to these diseases.

REFERENCES

1. Picardi A, Abeni D. Stressful life events and skin diseases: Disentangling evidence from myth. *Psychother Psychosom* 2001;70:118-36.
2. Singh G, Kaur D, Kaur H. Presumptive stressful events scale: A new life events scale for use in India. *Indian J Clin Psychol* 1981;8:173-6.
3. Holmes TH, Rahe RH. The social readjustment rating scale. *J Psychosom Res* 1967;11:213-8.
4. Gupta MA, Gupta AK. Stressful major life events are associated with a higher frequency of cutaneous sensory symptoms: An empirical study of non-clinical subjects. *J Eur Acad Dermatol Venereol* 2004;18:560-5.
5. Farber EM, Rein G, Lanigan SW. Stress and Psoriasis. *Psychoneuroimmunologic Mechanisms*. *Int J Dermatol* 1991;30:8-12.
6. Selye H. The general adaptation syndrome and the diseases

- of adaptation. *J Clin Endocrinol* 1946;6:117-230.
7. Moore RY, Bloom FE. Central catecholamine neuron systems: Anatomy and physiology of the norepinephrine and epinephrine systems. *Annu Rev Neurosci* 1979;22:113-68.
 8. Palmlblad JE. Stress related modulation of immunity. *Cancer Detect Prev Suppl* 1987;1:57-64.
 9. Gupta MA, Gupta AK, Kirkby S, Schork NJ, Gorr SK, Ellis CN, *et al.* A psychocutaneous profile of psoriasis patients who are stress reactors: A study of 127 patients. *Gen Hosp Psychiatry* 1989;11:166-73.
 10. Fava GA, Perini GI, Santonastaso P, Fornasa CV. Life events and psychological distress in dermatologic disorders: Psoriasis, chronic urticaria and fungal infections. *Br J Med Psychol* 1980;53:277-82.
 11. Baldero B, Brociani G, Bossi G, Offidani AM, Novelli N, Ferri AM. Psoriasis: Incidenza di eventi stressanti nei sei mesi precedenti la comparsa della malattia. *Med Psicosom* 1989;34:47-51.
 12. Polenghi MM, Gala C, Citeri A, Russo R, Pigatto PD, Altomare GF. Psoriasis ed eventi stressanti. *G Ital Dermatol Venereol* 1987;122:167-70.
 13. Lyketsos GC, Stratigos GC, Tawil G, Psaras M, Lyketsos CG. Hostile personality characteristics, dysthymic states and neurotic symptoms in urticaria, psoriasis and alopecia. *Psychother Psychosom* 1985;44:122-31.
 14. Rees L. An etiological study of chronic urticaria and angioneurotic oedema. *J Psychosom Res* 1957;3:172-89.
 15. Michealsson G. Chronic urticaria. *Acta Derm Venerol* 1969; 49:404-16.
 16. Seville RH. Psoriasis and stress. *Br J Dermatol* 1977;97:297-302.
 17. Polenghi MM, Gala C, Citeri A, Manca G, Guzzi R, Barcella M, *et al.* Psychoneuro-physiological implications in the pathogenesis and treatment of psoriasis. *Acta Dermatol Venerol Suppl* 1989;146:84-6.
 18. Seville RH. Psoriasis and stress II. *Br J Dermatol* 1978; 98:151-3.
 19. Pacan P, Szepietowski JC, Kiejna A. Stressful life events and depression in Patients suffering from Psoriasis Vulgaris. *Dermatol Psychosomat* 2003;4:142-5.