

Life Events and Alopecia areata¹

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Abstract. 48 patients with alopecia areata, 30 with common baldness, 30 with fungal infections underwent the Paykel's Interview for recent life events. In the 6 months preceding onset, alopecic patients reported 123 events ($\bar{x} = 2.56$), patients with common baldness 22 events ($\bar{x} = 0.73$), patients with fungal infections 15 ($\bar{x} = 0.50$) ($p < 0.001$). Events with negative impact, exits from social fields, uncontrolled events and socially desirable and undesirable events were significantly more frequent in alopecic patients than in controls.

Alopecia areata (AA) appears to be a heterogeneous syndrome [1]. The incidence of its different types seems to vary from country to country [2-5]. A great variability does exist in relation to prognosis, response to treatment and association with atopic states and autoimmune disorders.

The role of stress in AA is still controversial. According to Anderson [6], mental shock or acute anxiety preceded the appearance of AA in 23% of 123 cases. Irwin [7] reported the same percentage of cases with close-time relationship between the onset of AA and traumatic events as anxiety-producing situations. Reinhold [8] reported that in about 30% of AA patients a major or minor crisis occurred before the onset of hair loss. Examples of 'crisis' were losses, financial and

marital problems and car accidents. Acute emotional stress such as death in the family or severe fright was considered to be a precipitating or accentuating factor in 12% of 736 cases of alopecic patients [9]. Greenberg [10] considered the role of precipitating factors less important than chronic, serious mental and emotional difficulties, that were present in 93% of his 44 patients with AA. McAlpine [11] supported the view that AA is not a psychosomatic disease. She criticized previous studies on the ground of methodological errors (no control groups) and the conceptual mistake of considering psychological factors as a cause, not as a consequence of aesthetic changes. In her 125 patients, only 4.8% of patients reported a history of 'mental trauma' preceding AA onset.

There are several likely reasons for the conflicting results: the sample of patients suffering from AA varied and were hardly com-

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parable. The methods of assessing stress also varied: life changes were poorly defined ('mental trauma') and lacked standardization. Major advances in life events research have taken place in the last 15 years. Adequate study of recent life events has entailed solution to a number of methodological problems [12-15].

The purpose of this study was to test the hypothesis of a significant relationship between stressful life events and onset of AA.

Methods

A series of 108 outpatients attending the Dermatologic Clinic of the University of Padua was investigated: (1) 48 consecutive patients (27 males, 21 females) suffering from AA with the onset of symptoms dating back to no more than 6 months (group 1), (2) 30 consecutive patients (15 males, 15 females) with common baldness clinically evident. We excluded from the study patients with a complaint of hair loss but without clinical evidence of such a loss (group 2), (3) 30 consecutive patients (14 males, 16 females) with fungal infections (group 3).

Family and personal history of atopic, autoimmune, and hypertensive disorders was investigated in the patients suffering from AA. All patients were classified as belonging to type I (common type), according to *Idéka's* [1] classification. Patients with common baldness were evaluated and classified according to *Hamilton* [16] criteria, subsequently modified by *Ebling and Rook* [17] for common baldness in males and according to *Ludwig* [18] criteria for common baldness in females. 23 patients had grade I, 7 grade II. The mean age was 30.75 (± 11.83) for group 1, 28.70 (± 8.58) for group 2 and 32.40 (± 12.83).

Life events were recorded according to *Paykel's* [19] Revised Interview for Recent Life Events, which is a somewhat expanded version of the previous list [20], covering 64 life events. This scale was administered as a semistructured research interview, with each event being inquired about unless it clearly did not apply. All patients were seen by the same interviewer. The time period for which events were recorded was 6 months immediately prior to the onset of the derma-

tologic disorders. In order to minimize distortions of recall, we included only patients whose duration of symptoms was 8 months or less. Detailed questioning was carried out to determine the exact nature and full circumstances of each event reported.

On the basis of this account, the objective negative impact was rated (the severity of the negative impact of the event is rated which would be expected to have on someone, when its full nature and particular circumstances are taken into account, but completely ignoring the patient's subjective reporting of his reaction [19]). It was rated on a five-point scale. These ratings were made by an independent rater, and were based on the history obtained during the interview. The rater was unaware whether the life events had occurred in a patient suffering from AA or in the two control groups, as suggested by *Fava et al.* [15]. *Paykel's* Revised Interview for Recent Life Events was given in its validated Italian translation, which had been used in several previous studies [15, 21, 22].

The analysis of covariance, with age, sex, marital status, and social class as covariates was used.

Results

Patients with AA reported a total of 123 events ($\bar{x} = 2.56/\text{patient}$), patients with common baldness 22 ($\bar{x} = 0.73$), patients with fungal infections 15 ($\bar{x} = 0.50$). These differences were highly significant ($p < 0.001$), also when adjusted for age, sex, marital status and social class. Patients suffering from AA reported a total of 63 events, 1.31 patient, which were rated as severe, marked or moderate negative impact; patients with common baldness 10 events, 0.33 patient, and patients suffering from fungal infection 6, 0.20 patient. Also these differences were highly significant at the analysis of covariance ($p < 0.001$).

Patients were compared according to 3 categories of life events [20] (table I): (a) exits, involving a departure of a person from the social field (e.g., death, divorce), and entrances involving introductions of new peo-

Table I. Life events in alopecic patients and controls: number of events in each category

Category	Alopecial areata (n = 48)	Common baldness (n = 30)	Fungal infections (n = 30)	Significance ¹
Entrances	3	4	2	NS
Exits	15	2	4	p < 0.05
Desirable events	18	4	1	p < 0.05
Undesirable events	62	10	10	p < 0.001
Controlled events	16	5	3	NS
Uncontrolled events	33	2	6	p < 0.05

¹ Analysis of covariance with age, sex, marital status and social class as covariants.

ple (e.g., birth of a child, marriage); (b) either clearly socially desirable or undesirable events; (c) controlled events (when initiation of the event was likely to be under the subject's control or choice), or uncontrolled events (when it was not likely to be under his control or was against his will). Exits ($p < 0.05$), socially desirable events ($p < 0.05$), socially undesirable events ($p < 0.001$), uncontrolled events ($p < 0.05$) were the categories of events significantly more frequent in AA than in controls. Patients with AA reported significantly more events in the areas of work ($p < 0.001$), finances ($p < 0.05$), family and social relationship ($p < 0.001$) compared to controls.

Discussion

In previous reports on the incidence of stressful life events in patients with AA [6-9], the percentage of patients reporting such events ranged between 12 and 23%. However, these studies suffer from methodological defects: the definition and the recording

of life events were vague and imprecise, control groups were lacking, samples were heterogeneous (common, atopic, prehypertensive, endocrine-autonomic or autoimmune). Our group was composed only by common alopecia and stressful events were present in a higher percentage (87.5%) than in controls.

Events with objective negative impact, exits from the social field, uncontrolled and undesirable events were found to be significantly more frequent in patients suffering from AA than in control groups. These events were found to be characteristic of depressed patients compared to controls or patients suffering from other psychiatric disorders [15, 23-25]. The contributions of life events to the pathogenesis of AA is open to question. It has been suggested by clinical observations [2, 8] that a complex physical and emotional interrelation does exist between depression and AA.

There is some preliminary evidence that AA is an autoimmune disorder with a dysfunction of T-suppressor lymphocytes [4, 26-29]. If this hypothesis will find further validation, it will be possible to speculate that the link between stress and immune system through the hypothalamus [30-32] is operating also in AA. It has already been shown that bereavement [33] is associated with a reduction of cellular immunity.

Attempts were made to avoid some biases which may occur in clinical studies. Retrospective studies have obvious inherent risks. A source of error may be distortion of recall; the more distant the period of recall, the more likely is the life changes to be underestimated and the accuracy of recall to be inversely proportional to the remoteness of the time period being recalled [34]. The likelihood of biased recall can be decreased by limiting the samples only to patients with

recent onset of dermatological illness as we did. Careful dating of the onset of symptoms, the recording of life events which preceded it, rigorous event definition, the use of an independent rater, who was unaware of who had reported the event, are likely to minimize these biases. Another source of error in retrospective studies could be biased recall. One could argue that medical patients do not actually experience more events, but simply recall more of them, perhaps because they are seeking an explanation of their disorder [12], the so-called 'effort after meaning'. The use of a control group with similar aesthetic changes (effluvium) is likely to decrease though not eliminate spurious differences in comparison. The likelihood of spurious association was reduced, yet the findings confirmed those of a previous study on the relationship between life events and dermatological disorders [22].

In view of the methods used, the results of the present study are suggestive of a causal relationship between life events and AA. The size of the contribution of life events in the etiology of AA cannot be determined with certainty from studies of these kind. There is ample evidence that different factors contribute to AA (heredity, atopy, autoimmunity) [2]. The findings in this study appear to corroborate that uncontrolled events, undesirable events and exits play a substantial role as precipitants in some patients suffering from AA.

References

- 1 Ikeda, T.: A new classification of alopecia areata. *Dermatologica* 131: 421-445 (1965).
- 2 Rook, A.: Common baldness and alopecia areata; in Rook. *Recent advances in dermatology*, vol. 4 (Churchill Livingstone, Edinburgh 1977).
- 3 Rook, A.; Wilkinson, D.S.: Alopecia areata; in Rook, Wilkinson, Ebling. *Textbook of dermatology* (Blackwell, Oxford 1979).
- 4 Editorial: Alopecia areata. *Br. med. J.* 6057: 335-336 (1977).
- 5 Whitlock, F.A.: *Psychophysiological aspects of skin diseases* (Saunders, London 1976).
- 6 Anderson, I.: Alopecia areata: a clinical study. *Br. med. J. ii*: 1250-1252 (1950).
- 7 Irwin, D.: Alopecia; in Wittkower, Russell, *Emotional factors in skin diseases* (Hoeber, New York 1953).
- 8 Reinhold, M.: Relationship of stress to the development of symptoms in alopecia areata and chronic urticaria. *Br. med. J. i*: 846-849 (1960).
- 9 Muller, S.; Winkelmann, R.K.: Alopecia areata, an evaluation of 736 patients. *Archs Derm.* 88: 290-297 (1963).
- 10 Greenberg, S.I.: Alopecia areata - a psychiatric survey. *Archs Derm.* 72: 454-467 (1955).
- 11 MacAlpine, I.: Is alopecia areata psychosomatic? A psychiatric study. *Br. J. Derm.* 70: 117-131 (1958).
- 12 Paykel, E.S.: Recent life events and clinical depression; in Gunderson, Rahe. *Life stress and illness* (Thomas, Springfield 1974).
- 13 Brown, G.W.; Sklair, F.; Harris, T.O.; Birley, J.T.: Life events and psychiatric disorders. 1. Some methodological issues. *Psychol. Med.* 3: 74-87 (1973).
- 14 Brown, G.W.; Harris, T.: *Social origins of depression* (Tavistock, London 1978).
- 15 Fava, G.A.; Munari, F.; Pavan, C.; Kellner, R.: Life events and depression. *J. aff. Dis.* 3: 159-165 (1981).
- 16 Hamilton, J.B.: Patterned loss of hair in man: types and incidence. *Ann. N.Y. Acad. Sci.* 53: 708-728 (1951).
- 17 Ebling, F.J.; Rook, A.: Hair; in Rook, Wilkinson, Ebling. *Textbook of dermatology* (Blackwell, Oxford 1979).
- 18 Ludwig, E.: Classification of the types of androgenetic alopecia (common baldness) occurring in the female sex. *Br. J. Derm.* 97: 247-254 (1977).
- 19 Paykel, E.S.; Emms, E.M.; Fletcher, J.; Rassaby, E.S.: Life events and social support in puerperal depression. *Br. J. Psychiat.* 136: 339-346 (1980).
- 20 Paykel, E.S.; McGuinness, B.; Gomez, J.: An Anglo-American comparison of the scaling of life events. *Br. J. med. Psychol.* 49: 237-247 (1976).

- 21 Fava, G.A.; Pavan, L.: Large bowel disorders. I. Illness configuration and life events. *Psychother. Psychosom.* 27: 93-99 (1976/77).
- 22 Fava, G.A.; Perini, G.I.; Santonastaso, P.; Veller Fornasa, C.: Life events and psychological distress in dermatologic disorders. *Br. J. med. Psychol.* 53: 277-282 (1980).
- 23 Paykel, E.S.; Myers, J.K.; Dienelt, M.N.; Klerman, G.L.; Lindenthal, J.J.; Pepper, M.P.: Life events and depression. *Archs gen. Psychiat.* 21: 753-760 (1969).
- 24 Jacobs, S.C.; Prusoff, B.A.; Paykel, E.S.: Recent life events in schizophrenia and depression. *Psychol. Med.* 4: 444-453 (1974).
- 25 Barrett, J.E.: The relationship of life events to the onset of neurotic disorders; in Barrett, *Stress and mental disorder* (Raven Press, New York 1979).
- 26 Friedmann, P.S.: Decreased lymphocyte reactivity and auto-immunity in alopecia areata. *Br. J. Derm.* 105: 145-151 (1981).
- 27 Friedmann, P.S.: Alopecia areata and autoimmunity. *Br. J. Derm.* 105: 153-157 (1981).
- 28 Brown, A.C.; Olkowski, Z.L.; McLaren, J.R.: Thymus lymphocytes of the peripheral blood in patients with alopecia areata. *Archs. Derm.* 113: 688 (1977).
- 29 Gianetti, A.; Disilverio, A.; Castellazzi, A.M.; Maccario, R.: Evidence for defective T cell function in patients with alopecia areata. *Br. J. Derm.* 98: 361 (1978).
- 30 Stein, M.; Schiavi, R.C.; Camerino, M.S.: Influence of brain and behavior on the immune system. *Science* 191: 435-440 (1976).
- 31 Stein, M.; Schleifer, S.; Keller, S.: Immune disorders; in Kaplan, Freedman, Sadock, *Comprehensive textbook of psychiatry*; 3rd ed. (Williams & Wilkins, Baltimore 1980).
- 32 Stein, M.; Keller, S.; Schleifer, S.: The hypothalamus and the immune response; in Weiner, Hofer, Stunkard, *Brain behavior and bodily disease* (Raven Press, New York 1981).
- 33 Bartrop, R.W.; Lazarus, L.; Luckhurst, E.; Kiloh, L.G.; Penny, R.: Depressed lymphocyte function after bereavement. *Lancet* i: 834-836 (1977).
- 34 Hurst, M.W.: Life changes and psychiatric symptom development; in Barrett, *Stress and mental disorder* (Raven Press, New York 1979).

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