Impact of Psychosocial Profile on Alopecia Areata in Pediatric Patients: A Case Control Study from A Tertiary Care Hospital in Eastern Uttar Pradesh

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Abstract

Background: Alopecia areata (AA) is a common form of nonscarring alopecia characterized by patchy loss of hair from the scalp and body. It is a complex outcome of factors such as autoimmunity, genetic factors, infectious diseases, as well as psychological factors, such as stress, personality type, familial conditions. Around 20% of patients are in the pediatric age group, and 60% of the patients develop AA before the age of 20 years. Aim: The present study looked into the impact of psychosocial factors in AA. Materials and Methods: This was a case-control study conducted over a period of 1 year. One hundred and two patients and age and gender-matched control group between the ages of 2 and 14 years were included. A questionnaire was administered to identify the stress arising due to personal or familial conditions, school-related issues, psychotrauma or illness, and accidents prior to developing AA. Age and gender-matched patients with other dermatoses with low psychosomatic component to it and unlikely to be influenced by stress were selected as control. Result: Fifty-three patients (52%) were male and 49 were female (48%). Fifty-five (53.9%) patients were in the age group of 10 to 14 years. Forty (39.2%) children had multiple patches. Onset was <5 months in 30 patients (29.4%). Forty-nine (48%) children reported stress due to school-related issues compared to 13 (12.7%) in the control group. Eighteen (17.6%) children had familial issues compared to 6 (0.05%) in the control group. Nineteen children (18.6%) had multiple stressors. Sixty-nine (67.6%) patients related their disease to a stress component compared to 33 (32.3%) who could not relate to any stress. A significant association was noted between examination pressure and academic performance with onset of AA compared to control (P < 0.05%), which was stronger among female compared to male. Conclusion: The psychological profile and comorbidities have a significant impact on the onset or recidivism of AA. Impact of a stressful personal or family life, parental pressure to perform better in school, and psychological vulnerability can significantly contribute to the onset or exacerbation of AA.

Key Words: Alopecia areata, pediatric psychosocial disorders, psychosocial impact, psychotherapy, stress

Introduction

Alopecia areata (AA) is a chronic autoimmune disease characterized by nonscarring patches of hair loss on the scalp and/or body. It is a common type of hair loss frequently seen by dermatologists globally accounting for 25% of all alopecia cases. The prevalence of AA in general population is 0.1%–0.2%, with a lifetime risk of 1.7%, affecting both genders equally. Twenty percent of AA cases are seen in children, with 60% developing it before 20 years of age. Although the exact etiopathogenesis of AA still remains elusive, a variety of factors, such as stress and psychosocial profile of the patient in causing or exacerbating AA have been widely reported. In addition to the genetic susceptibility of the patients, other triggering factors, such as environmental, behavioral, psychological and social issues have been incriminated. Stress due to multiple causes have been associated with AA with variable results in the literature. Although no controlled studies have...
been done for evaluating the impact of stress on AA, individual case reports of emotional trauma resulting from death in the family or accident have been reported as a precipitating factor. It has been proposed that stress results in an abnormal and extreme physiological adjustment by the body to cope with and adjust to the environment resulting in AA. In pediatric age group, the data correlating stress and AA is highly variable, ranging from no correlation between stress and AA to involvement of stressors in up to 80% of the cases. It is proposed that a stressful event in life and a poor coping mechanism may perpetuate the disease process in children.

Materials and Methods

This was a case-control study done in the dermatology department of a tertiary care hospital in eastern Uttar Pradesh. Children of both genders between the ages of 2 and 14 years were included. Written informed consent was taken from parents. Institutional ethics committee approval was obtained. A total of 102 children with AA were included along with age and gender-matched controls who had skin diseases with low psychosomatic component to it or unrelated to stress such as bacterial, viral, or fungal diseases.

A detailed interview with patients and parents was conducted in all the subjects and the data were secured in a proforma. We included stressful conditions or life events occurring during 9 months prior to the evaluation, whereas those having onset before or after developing AA were excluded. The data were analyzed into heads such as issues related to school and education, familial conditions causing stress, accidents or surgeries in self, and psychosocial trauma.

Results

Out of 102 patients, 53 (52%) were male and 49 were female (48%). Fifty-five (53.9%) patients were between 10 and 14 years of age followed by 37 (36.3%) aged 5–10 years. Multiple patches were seen in 40 (39.2%) children, 35 (34.3%) had a solitary patch, 26 (25.5%) had confluent patches, while only 1 (1%) had alopecia totalis. Involvement of occipital region of scalp was seen in 51 (50%) patients, temporal area in 39 (38.2%), frontal in 11 (10.8%), and other body parts were involved in 1 (1%) patient. Onset of the disease was <5 months in 30 (29.4%) patients, <2 months in 29 (28.4%), <7 months in 22 (21.6%), and <9 months in 21 (20.6%) cases [Table 1].

Forty-nine (48%) children reported stress due to school-related issues compared to 13 (12.7%) from the control group (P < 0.001). Eighteen (17.6%) children in the study group had familial issues compared to 6 (5.8%) in the control group (P < 0.01). Two (1.9%) children in AA group had surgery, accident, or trauma. A total of 19 (18.6%) patients reported multiple factors related to school and family. Out of the total 102 patients, 69 (67.6%) related their disease to a stress compared to 33 (32.3%) who could not relate the disease with any of the stressful events in the recent past. Nineteen (18.6%) children in the control group reported these stressors (P < 0.001) [Table 2]. There was a significant association between exam pressure and academic performance with onset of AA as compared to controls (P < 0.05%), which was stronger among females as compared to males.

Discussion

The association of AA with stressful events in life has been controversial till date. Studies have reported conflicting results ranging from marginally significant

| Table 1: Demographic profile of the study and control groups |
|-------------------------------------------------------------|
| Study group with AA | Males | Females | Total |
|-------------------------------------------------------------|
| Age |
| <2 years | 1 (1.9%) | - | 1 (1%) |
| 2-5 years | 7 (13.2%) | 2 (4.1%) | 9 (8.8%) |
| 6-10 years | 21 (39.6%) | 16 (32.6%) | 37 (36.3%) |
| 11-14 years | 24 (45.3%) | 31 (63.3%) | 55 (53.9%) |
| Extent of AA |
| Solitary patch | 14 (26.4%) | 21 (42.9%) | 35 (34.3%) |
| Multiple patches | 21 (39.6%) | 19 (38.8%) | 40 (39.2%) |
| Confluent | 17 (32.1%) | 9 (18.4%) | 26 (25.5%) |
| Totalis | 1 (1.9%) | - | 1 (1%) |
| Universis - |
| Area involved |
| Frontal region | 7 (13.2%) | 4 (8.2%) | 11 (10.8%) |
| Parietal/vertex | 33 (62.3%) | 18 (36.7%) | 51 (50%) |
| Occipital | 22 (22.6%) | 27 (55.1%) | 39 (38.2%) |
| Temporal | 1 (1.9%) | - | 1 (1%) |
| Other body parts - |
| Onset of disease |
| <2 months | 17 (32.1%) | 12 (24.5%) | 29 (28.4%) |
| <5 months | 12 (22.6%) | 18 (36.7%) | 30 (29.4%) |
| <7 months | 13 (24.5%) | 9 (18.4%) | 22 (21.6%) |
| <9 months | 11 (20.8%) | 10 (20.4%) | 21 (20.6%) |
| Controls |
| Tinea pedis | 9 (17%) | 4 (8.2%) | 13 (12.7%) |
| Tinea corporis | 15 (28.3%) | 17 (34.7%) | 32 (31.4%) |
| Onychomycosis | 07 (13.2%) | 09 (18.4%) | 16 (15.7%) |
| Pityriasis versicolor | 6 (11.3%) | 7 (14.3%) | 13 (12.7%) |
| Verruca | 2 (3.8%) | 4 (8.2%) | 6 (5.9%) |
| Impetigo | 7 (13.2%) | 4 (8.2%) | 11 (10.8%) |
| Molluscum | 3 (5.7%) | 4 (8.2%) | 7 (6.9%) |
| Furunculosis | 4 (7.5%) | - | 4 (3.9%) |
Table 2: Comparison between cases and controls regarding type of stressor/event involved

| Type of stressor/event                  | Cases       | Controls     | P  |
|----------------------------------------|-------------|--------------|----|
|                                        | Females     | Males        | Females | Males | Total | Females | Males | Total |
| Related to school/kindergarten         |             |              |     |      |       |         |       |       |
| Beginning school                       | 2           | 4            | 6   | 1     | 1     | 2       | 1.0000 | 0.3711 | 0.2888 |
| Exams                                  | 9           | 8            | 17  | 2     | 0     | 2       | 0.0704 | -      | 0.0013 |
| Change in school                       | 0           | 1            | 1   | 1     | 0     | 1       | -      | -      | 0.4795 |
| Performance pressure                   | 8           | 9            | 17  | 1     | 2     | 3       | 0.0455 | 0.0704 | 0.0037 |
| Criticism by teacher                  | 0           | 0            | 0   | 0     | 1     | 1       | -      | -      | -      |
| Stress of home-work                   | 2           | 4            | 6   | 0     | 2     | 2       | -      | 0.6831 | 0.2888 |
| Relationship with friends/school mates | 0           | 1            | 1   | 0     | 1     | 1       | -      | 0.4795 | 0.4795 |
| Over solicitation                      | 0           | 1            | 1   | 0     | 1     | 1       | -      | 0.4795 | 0.4795 |
| Familial issues                        |             |              |     |      |       |         |       |       |
| Death of a family member               | 0           | 1            | 1   | 1     | 0     | 1       | -      | -      | 0.4795 |
| Financial security                     | 1           | 0            | 1   | 0     | 0     | 0       | -      | -      | -      |
| Living without parents                 | 1           | 1            | 2   | 0     | 0     | 0       | -      | -      | -      |
| Parents ignoring child                 | 1           | 4            | 5   | 2     | 2     | 4       | 1.0000 | 0.6831 | 1.0000 |
| Separation/Divorce of parents          | 2           | 2            | 4   | 0     | 0     | 0       | -      | -      | -      |
| Illness in the family                  | 1           | 1            | 2   | 1     | 0     | 1       | 0.4795 | -      | 1.0000 |
| Parental pressure to perform in school | 0           | 3            | 3   | 0     | 0     | 0       | -      | -      | -      |
| Illness/surgery                        | 1           | 1            | 2   | 0     | 0     | 0       | -      | -      | -      |

association to none.\cite{8,9} The first observation on this correlation was made in the 1960s when mental stress was found to have a relation with AA.\cite{10,11} It was almost after one and a half decade later that the attempt to correlate the two was made through few case reports.\cite{12} Although literature has reported studies to establish an association between stress and AA, similar studies are lacking in the pediatric age group. Through this study we attempted to investigate the association of potential stressors in terms of social, familial, and personal factors on the development of AA in the pediatric age group to bridge the existing gap in our knowledge on this association.

The prevalence of pediatric AA is varied in literature and ranges from 2.4–6.7%.\cite{13,14} Though childhood AA is more commonly reported in female children, some studies have found male preponderance also.\cite{9,15,16} The present study had males more commonly affected as compared to females.

We found that 69 (67.6%) patients could relate their disease to a stressor in our study population compared to 19 children in the control group (17.6%). Our findings are consistent with the study by Wylaedowska et al. where important general events were mentioned by 80% of the patients, out of which 62% stated it as a serious event.\cite{17} However, there are studies correlating AA with stress in less than 10% cases or not at all.\cite{10,18} Liakopolou et al. conducted a study on 33 pediatric patients and correlated AA with lack of positive events during the time prior to the onset; on the other hand, other studies have not found any such correlation.\cite{19}

The types of stressful event most consistently associated with AA include school or education-related issues (exams, too much home-work, performance pressure, change in school, relationship with teachers and school-mates), familial conditions (relationship between parents, death of any parent, staying alone without parents, financial issues, family dispute), and illnesses and accidents. Our study also found similar events mentioned by patients. Andreoli et al. in their study on 180 patients proposed stressful potential stressors in the form of separation from loved ones, pets, habits, things, or familiar environment in 37% cases, relation issues in 32%, and difficulty in meeting the expectation of parents in 24% of the cases.\cite{20,21} The present study found a positive correlation between the exam pressure and academic performance pressure with onset of AA, which was consistent with the findings of Andreoli et al. Kakourou et al. studied AA in children and teenagers and reported that stress was the precipitating factor in 9.5% of the cases (experienced stress up to 3 months prior to the disease).\cite{22} In the present study, most patients had experienced a stressful event within 5 months prior to the disease onset. Unfortunately, there is lack of comparative studies on similar subject at present and the data could not be extensively compared. Most studies analyzing the relation between stress and AA are limited to adult population, where it is relatively easier to have a first-hand account of the disease with a reasonably reliable insight into the mental status of the patient as compared to the pediatric age group.
Conclusion
Although debatable, stressful events have an impact on AA. A stressor can influence the emotional balance of the patient resulting in AA. We should consider both the stressful event itself and the perceived stress while dealing with AA. It is recommended to adopt a psychosomatic approach which includes stress management, relaxation sessions, and psychiatric consultation for managing AA having stress as a precipitating factor.

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Conflicts of interest
There are no conflicts of interest.

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