Cholinergic urticaria: Clinicoepidemiological paradigms from a tertiary care center in North India

Sir,

Cholinergic urticaria is a relatively rare variant of physical urticaria that is characterized by pinpoint highly pruritic wheals caused by an increase in core body temperature. Despite being first described many years ago, its epidemiology and various clinical characteristics remain elusive. A relative scarcity of reports regarding cholinergic urticaria from India intrigued us to evaluate its prevalence and clinical characteristics among our urticaria patients.

We conducted a retrospective study in the urticaria clinic of the Department of Dermatology of Postgraduate Institute of Medical Education and Research, Chandigarh, India, which is a tertiary care referral center. A retrospective analysis of files of all urticaria patients seen between January 2011 and December 2015 was done and all patients of cholinergic urticaria were shortlisted. Patients with a history suggestive of inducible urticaria due to any cause other than cholinergic urticaria and those with chronic spontaneous urticaria were excluded from the study. Selected patients were weaned off antihistamines for at least 2 weeks before performing diagnostic tests. The diagnosis of cholinergic urticaria was confirmed by asking the patients to climb 48 stairs or walk briskly around the outpatient corridor until the patient started sweating. The disease severity was classified as mild (urticaria episodes occurring less than once daily, with no effect on quality of life), moderate (daily occurrence of wheals or associated depression affecting quality of life) and severe (anaphylaxis and severe depression). A total of 1728 urticaria patients were screened of whom only 30 (1.7%) had cholinergic urticaria, among which, 23 were males with a male to female ratio (M:F) of 3.3:1. The mean age of males was 19 years and that of females was 36.25 years. Disease onset in most patients was during the second decade of life [Figure 1]. Nearly equal number of patients had mild (n = 14) and moderately severe disease (n = 16), while none of the patients had a severe disease with anaphylaxis. Various clinical characteristics of the study cohort are summarized in Table 1.

All the patients were routinely counseled regarding lifestyle modifications to avoid sweating. Fourteen patients were prescribed levocetirizine 5 mg and the remaining desloratadine 5 mg. On follow-up, at the end of 1 and 3 months, respectively, it was observed that all patients on desloratadine demonstrated a better symptomatic relief compared to levocetirizine. Subsequently, all the patients on levocetirizine were shifted to desloratadine. Ten patients responded to once-daily doses of desloratadine, while the remaining required dose escalation to 2–4 times a day for complete symptomatic relief.

Follow-up of patients in our study ranged between 3 and 5 years. Twenty-six (86.6%) patients on desloratadine were lesion free by 3 months of regular treatment and later required only occasional doses (once in a fortnight to once a month) along with avoidance of excessive sweating. The remaining four patients required more frequent doses of antihistamines. No particular risk factor could be identified in such patients.

The characteristic small and pruritic wheals in cholinergic urticaria appear following any stimulus that induces sweating, including elevation of body temperature, physical exercise, intake of spicy food and emotional stress. Cholinergic urticaria has been found

| Clinical feature (n=30) | Data, n (%) |
|------------------------|------------|
| Sex                    |            |
| Male                   | 23 (76.6)  |
| Mean age (years)± SD   |            |
| Males                  | 19±6.1     |
| Females                | 36.25±8.5  |
| Distribution of skin lesion |        |
| Trunk and extremities  | 25 (83.3)  |
| Lower extremity and flexures | 2 (6.7) |
| Upper extremity        | 3 (10)     |
| Disease severity       |            |
| Mild                   | 14 (46.6)  |
| Moderate               | 16 (53.3)  |
| Severe                 | 0          |
| Aggravating factor     |            |
| Sweating in daily activities | 19 (63.1) |
| Exercise               | 16 (53.3)  |
| Sun                    | 5 (16.6)   |
| Hot and spicy food     | 5 (16.6)   |
| Emotional stress       | 3 (10)     |
| Scratching             | 2 (6.6)    |
| Symptoms               |            |
| Itching                | 2 (6.7)    |
| Burning                | 20 (66.7)  |
| Both                   | 8 (26.6)   |
| Seasonal variation     | 22 (73.4)  |
| Worse in winters       | 14 (46.7)  |
| Worse in summers       | 8 (26.7)   |
| Accompanying atopic disease | 6 (20) |
| Angioedema             | 5 (16.7)   |
| Coexisting urticaria   |            |
| Symptomatic dermographism | 10 (33.3) |
| Duration of each episode (h) |
| <1                     | 26 (86.7)  |
| >1                     | 4 (13.3)   |

n: Number of patients
Letters to the Editor

Cholinergic urticaria can be severely disabling at times as most provoking factors are integral to daily activities. Performing appropriate provocation tests to establish its etiology can be greatly rewarding. This study highlights that the prevalence of cholinergic urticaria in India is lesser as compared to western countries. Whether this is due to genetic constitution, environmental factors or less frequent reporting to a health-care setup due to easy availability of over-the-counter antihistamines needs further studies. Furthermore, it remains to be studied if desloratadine has an additional influence on sweating or sweat sensitivity that could probably explain its better efficacy in controlling cholinergic urticaria.

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Conflicts of interest
There are no conflicts of interest.

Table 2: Comparison of current study with previous studies

| Clinical feature                          | Kim et al.5 | Zuberbier et al.4 | Silpa-archa et al.6 | Ramam and Pahwa7 | Present study |
|------------------------------------------|-------------|------------------|---------------------|------------------|--------------|
| Study design                             | Retrospective study over 10 years | Prospective study | Retrospective study over 5 years | Retrospective study over 1 year | Present study |
| Inclusion criteria                       | Patients with symptoms confirmed by exercise provocation test | College students who responded positively to questionnaires and partly by exercise test | Patients with symptoms confirmed by exercise provocation test | Patients with symptoms confirmed by exercise provocation test | Present study |
| Age of onset (%)                         |             |                  |                     |                  |              |
| Second decade                            | 51.1        | NS               | NS                  | NS               | 47.3         |
| Third decade                             | 31.5        | NS               | NS                  | NS               | 26.3         |
| Sex                                      | Males>females | Females>Males | NS                  | NS               | Males>females |
| Mean disease duration (months)           | 48          | NS               | 60                  | NS               | 46           |
| Seasonal aggravation (%)                 | 46.7        | NS               | NS                  | NS               | 78.2         |
| Coexistence of atopy (%)                 | 16.3        | NS               | 23.3                | NS               | 20           |
| Distribution of lesions (%)              | Trunk and upper extremity (98.9) | NS                  | NS                  | Trunk and both limbs (83.3) | Symptomatic dermographism (33.3) |
| Most common comorbid urticaria (%)       | Symptomatic Dermographism (6.5) | NS                  | NS                  | NS               | Symptomatic dermographism (33.3) |
| Systemic symptoms (%)                    | 9.7         | 11               | NS                  | NS               | 16.7         |

NS: Not studied
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