



Letters

Assessment of depression, anxiety, and stress in chronic urticaria and its correlation with disease severity

Chronic urticaria (CU) is defined as the occurrence of itchy wheals, angioedema, or both for at least 6 weeks. Dermatologic conditions like psoriasis, atopic dermatitis, urticaria, and generalized pruritus are often found to be associated with psychological disorders such as anxiety. Previous studies have found a high prevalence (35% to 60%) of psychiatric comorbidities in patients with chronic spontaneous urticaria (CSU).^{1–3} Anxiety, depression, and somatoform disorders are among the most prevalent disorders in patients with CSU.¹ Chronic spontaneous urticaria affect everyday life, causing limitation and impairment of physical and emotional functioning, often because of constant itching and occurrence of wheals that can lead to social withdrawal, sedation, and fatigue induced by antihistamines.² We have undertaken this study to determine the need for routine screening for early diagnosis and management of mental disorders in CSU.

A prospective cross-sectional study was conducted in the Department of Dermatology approved by the institutional ethics committee. A total of 125 patients with CSU and 40 healthy controls (>18 years old) were included after obtaining written informed consent. Patients with acute urticaria, urticarial vasculitis, physical urticaria, psychiatric disorder, malignant or central nervous system disease, and also pregnant or lactating women were excluded. Data were collected regarding, age, sex, duration, and severity of the disease. The severity grading of CSU was based on the urticaria activity score (UAS).⁴ The UAS was calculated by adding the scores of the number of wheals and severity of itch on a given day for each day of the week to get the weekly UAS (0 to 42). Assessment of depression, anxiety, and stress was done using the 21-item depression anxiety stress scale (DASS), which is a set of questionnaires based on 3 subscales of depression, anxiety, and stress, each having a subscale consisting of 7 questions.⁵ The states of depression, anxiety, and stress were calculated by summing up the scores for each question in DASS-21, which was scored on a Likert scale of 4 points (0, 1, 2, and 3) ranging from 0 (never) to 3 (almost always) on the basis of how the individual was feeling in the past week. These 4 answers for the level of severity were analyzed on the basis of the DASS-21 scoring guidelines, and scores on the DASS-21 were multiplied by 2 to calculate the final score, in which depression scores were categorized as normal (0–9), mild (10–13), moderate (14–20), severe (21–27), and extremely severe (28 and above); anxiety scores were categorized as normal (0–7), mild (8–9), moderate (10–14), severe (15–19), and extremely severe (20 and above); and stress scores were categorized as normal (0–14), mild (15–18), moderate (19–25), severe (26–33), and extremely severe (34 and above).

For demographic and other clinical variables, descriptive statistics mean ($\pm$ SD) and percentage (frequency) were used. All parameters, cases, and controls were compared using the χ^2 test. A *P* value of less

than .05 was considered statistically significant. All analyses were done using the standard statistical software Statistical Package for the Social Sciences version 20.

Among cases (125) and controls (40), 48 (38 %) and 24 (60%) were men, whereas 77 (61.6%) and 16 (40%) were women, respectively, which was statistically significant ($P = .001$). The mean age of cases and controls were 33.14 (± 11.418) and 33.53 (± 9.650) years, respectively ($P = .84$). The mean UAS was 24.99, and mild, moderate, and severe UAS were seen in 34, 26, and 65 cases, respectively. Depression ($P = .004$) and stress ($P < .001$) scores were significantly more in cases as compared with controls, whereas no statistical difference seen in anxiety ($P = .07$) score (Table 1). There were no statistically significant differences on the severity scores of depression ($P = .11$); the frequencies of mild, moderate, severe, and extremely severe grades among cases were 13 (10.4%), 13 (10.4%), 6 (4.8%), and 8 (6.4%), respectively, whereas for controls there were 2 (5%), 3 (7.5%), 0 (0.0%), and 0 (0.0%), respectively. Same is true for the severity scores of anxiety ($P = .30$), with those having mild, moderate, severe, and extremely severe grades among cases include 10 (8.0%), 22 (17.6%), 10 (8.0%), and 13 (10.4%) patients, respectively, as compared with controls who had 4 (10.0%), 3 (7.5%), 2 (5.0%), and 2 (5.0%) persons, respectively. We also found significant statistical differences ($P = .03$) on the severity scores of stress with mild, moderate, severe, and extremely severe grades in 15 (12.0%), 11 (8.8%), 14 (11.2%), and 7 (5.6%) patients among the cases, respectively; whereas the controls having 3 (7.5%), 2 (5.0%), 0 (0.0%), and 0 (0.0%) persons in each grades, respectively. Women ($n = 93$) were more depressed ($P = .005$), stressed ($P = .001$), and anxious ($P = .01$) than men ($n = 72$) in both cases and controls. The UAS values were higher in patients with CSU for depression ($P = .001$), anxiety ($P = .02$), and stress ($P = .007$). Depression is highly correlated with anxiety ($P < 0.001$) and stress ($P < .001$). Anxiety is highly correlated with stress ($P < .001$). There were no significant correlation among depression, anxiety, and stress with age ($p = .84$) and no substantial correlation with duration of the disease (Table 1).

Depression and anxiety are the most typically observed psychological comorbidities in CU.^{6,7} Psychological conditions like depression and anxiety may induce chronic pruritus or may be the sequelae of pruritus.⁸ The dreadful consequences of depression and anxiety are severe impairments in daily functioning, social withdrawal, and suicidal ideation, and this further reduced compliance with other treatment. Yang et al^{8,9} have suggested 2 mechanisms through which psychological conditions could affect CU. One theory stated that the interaction of the hypothalamic-pituitary-adrenocortical axis, the sympathetic and adrenomedullary system, and local skin nerve fibers activate the mast cells. Another theory suggests that psychological stress induce the release of cortisol and inflammatory mediators, which activate mast cells and cause CU.¹⁰ Chung et al³ reported that

Disclosures: The authors have no conflicts of interest to report.

Funding: The authors have no funding sources to report.

Table 1
Demographic and Clinical Profile of Cases and Controls and Correlations of DAS, Sex, Age, UAS, and Duration

Sex	Number of patients (%)		P value	UAS	Depression	Anxiety	Stress
	Cases(n = 125)	Controls(n = 40)					
Males	48 (38.4%)	24 (60%)	.01 ^a	—	(Total sample)		
Females	77 (61.6%)	16 (40%)			.005 ^a	.015 ^a	.001 ^a
Age (y)	33.14	33.53	.84	.23	.655	.097	.036
Range	(18–71)	(24–62)					
Depression	8.49 ± 9.517	3.90 ± 4.223	.004 ^a	.001 ^b	—	<.001 ^b	<.001 ^b
Anxiety	7.98 ± 7.702	5.65 ± 5.600	.07	.002 ^a	<.001 ^a	—	<.001 ^b
Stress	13.62 ± 9.847	7.70 ± 5.792	<.001 ^a	.007 ^b	<.001 ^a	<.001 ^a	—
Severity of urticaria(UAS-7) Mean (24.99)		—	—	—	.001 ^a	.02 ^a	.007 ^a
Mild 34 (27.2%) Moderate 26 (20.8%) Severe 65 (52.0%)							
Duration 29.032 (mo)		—		.54	.70	.76	.15
Range (2–228)							

Abbreviations: DAS, depression, anxiety, and stress; UAS, urticaria activity score.

^aThe P value is significant at below the .05 level.^bCorrelation is significant at the .05 level (2-tailed). Statistical significance was evaluated by Pearson's correlation test.

dermatologic diseases are risk factors for psychiatric disorders such as depression and anxiety, whereas others have suggested that psychiatric problems play a role in the etiology or exacerbation of urticaria.^{2,3} In a study by Choi et al,¹¹ anxiety, depression, and stress levels were significantly correlated with each other. However, Choi reported a significant correlation between anxiety and stress levels with UAS-6 and UAS-15/6, respectively, but not with depression scores. Different theories have been put forward toward the role of stress and stated that the quality of life in CSU can worsen owing to increased psychological stress, whereas, others highlighted the clinical consequences of stress in developing CSU.¹⁰ Little information is available with respect to anxiety, depression, and stress in Indian patients with CU. In the present study, we evaluated these conditions in CU and found a positive correlation with the disease severity. Small cohort size, single-center observations were the lacunae in this study.

Acknowledgments

The authors thank Dr Triptish Bhatia, PhD, Senior Research Scientist, Indo-US projects of the Department of Psychiatry, Center of Excellence in Mental Health, Dr Ram Manohar Lohia Hospital Atal Bihari Vajpayee Institute of Medical Sciences (DR RMLH ABVIMS), New Delhi, India for statistical analysis, and Dr Lokesh Shekhawat, Professor, Department of Psychiatry, Dr RMLH ABVIMS for his guidance in the research project.

Seema Rani, MD
Sweta Singh, MD, DNB
Dharmesh Kumar, MBBS
Srishti Dabas, MBBS

Kumari Ritu, MBBS
Department of Dermatology
Dr Ram Manohar Lohia Hospital Atal Bihari Vajpayee Institute of Medical Sciences (RMLH ABVIMS)
New Delhi, India
drseemashekhar@gmail.com

References

1. Chu CY, Cho YT, Jiang JH, Lin EI, Tang CH. Epidemiology and comorbidities of patients with chronic urticaria in Taiwan: a nationwide population-based study. *J Dermatol Sci.* 2017;88(2):192–198.
2. Barbosa F, Freitas J, Barbosa A. Chronic idiopathic urticaria and anxiety symptoms. *J Health Psychol.* 2011;16(7):1038–1047.
3. Chung MC, Symons C, Gilliam J, Kaminski ER. The relationship between posttraumatic stress disorder, psychiatric comorbidity, and personality traits among patients with chronic idiopathic urticaria. *Compr Psychiatry.* 2010;51(1):55–63.
4. Godse KV. Urticaria meter. *Indian J Dermatol.* 2012;57(5):410–411.
5. Lovibond PF, Lovibond SH. The structure of negative emotional states: comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behav Res Ther.* 1995;33(3):335–343.
6. Savic S, Leeman L, El-Shanawany T, et al. Chronic urticaria in the real-life clinical practice setting in the UK: results from the non interventional multicentre AWARE study. *Clin Exp Dermatol.* 2020;45(8):1003–1010.
7. Tat TS. Higher levels of depression and anxiety in patients with chronic urticaria. *Med Sci Monit.* 2019;25:115–120.
8. Yang HY, Sun CC, Wu YC, Wang JD. Stress, insomnia, and chronic idiopathic urticaria—a case-control study. *J Formos Med Assoc.* 2005;104(4):254–263.
9. Pasaoglu G, Baybek S, Tugcu H, Abadoglu O, Misirliligil Z. Psychological status of patients with chronic urticaria. *J Dermatol.* 2006;33:765–771.
10. Memet B, Vurgun E, Barlas F, Metz M, Maurer M, Kocatürk E. In chronic spontaneous urticaria, comorbid depression linked to higher disease activity, and substance P levels. *Front Psychiatry.* 2021;12: 667978.
11. Choi GS, Nam YH, Park CS, et al. Anxiety, depression, and stress in Korean patients with chronic urticaria. *Korean J Intern Med.* 2020;35(6):1507–1516.