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Original Research Article

Clinical and Laboratory Profile of Urticaria and Antihistamine Response: A Record-Based Retrospective Study

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Conflict of interest: Nil

Abstract:

Background: Urticaria is a common dermatological disorder characterized by recurrent pruritic wheals and angioedema, significantly affecting quality of life. Chronic spontaneous urticaria (CSU) is more prevalent than inducible forms, and laboratory markers like serum IgE may influence disease severity and treatment response.

Aim: To evaluate the clinical and laboratory profile of urticaria patients and assess their response to antihistamine therapy in a tertiary care setting.

Methodology: A record-based retrospective cross-sectional study was conducted on 34 newly diagnosed, treatment-naïve urticaria patients attending the Department of Skin and VD at Bhagwan Mahavir Institute of Medical Sciences, Bihar. Clinical variables included urticaria subtype, chronicity, angioedema, dermographism, and atopy. Laboratory parameters assessed were serum IgE, eosinophil and basophil counts, and hepatitis B/C serology. Response to antihistamines was documented. Data were analyzed using descriptive and inferential statistics.

Results: The majority of patients were middle-aged (≥40 years, 47%) and male (58.8%). Chronic urticaria was most common (91.2%), with spontaneous type predominating (64.7%). Dermographism, angioedema, and atopy were observed in 38.2%, 41.2%, and 32.4% of patients, respectively. Elevated serum IgE and eosinophilia were present in 41.2% and 26.5%. Most patients (67.6%) showed complete response to antihistamines.

Conclusion: Urticaria predominantly affects middle-aged adults, often chronic and spontaneous, with favorable response to antihistamines in most cases. Laboratory evaluation may guide individualized management.

Keywords: Urticaria, Chronic spontaneous urticaria, Serum IgE, Antihistamine response, Dermographism, Angioedema.

Introduction

Urticaria is a widespread and frequently disabling skin disorder that is marked by the presence of recurrence of pruritic wheals and/or angioedema. It is categorized generally with the periods of the symptoms as either acute urticaria, which continues less than six weeks, and chronic urticaria, continuing after six weeks [1]. Chronic urticaria in its turn is further subclassified into chronic spontaneous urticaria (CSU) wherein no identifiable triggers can be identified, and chronic inducible urticaria (CINDU) which is triggered by physical stimuli, i.e., by heat, cold, or sunlight. The frequent occurrence of wheals and pruritus has a major effect on the quality of life of patients leading to frequent distress, sleeping disturbances, and restriction of daily activities [2].

According to epidemiological data, the prevalence rate of urticaria is between 0.5 to 1 percent in a general population. The prevalence of the same is, however, country-specific with reports having a wide range of 0.69% to 6.8%. Urticaria is a disease that can be seen in all age groups but seems to be more common in adults (20-45 years old) [3]. Gender disparity has not been left behind as the studies reveal that more females than males have been diagnosed, yet the age of onset is similar in both the male and female gender. The urticaria natural history is heterogeneous with the mean disease duration of one-five years. The increased duration of the disease is especially reported in the patients who have angioedema, physical urticaria, or a positive test of autologous serum reactivity [4].

CSU seems to be more common than CINDU. As an example, a survey by Parisi et al. in Argentina showed that 67% of chronic urticaria were CSU [5]. CINDU has physical triggers such as cold (13.4%), and dermographism (24.8). Diagnostic diagnosis of

urticaria has a mixed approach that includes a clinical test and laboratory tests, i.e. estimating serum immunoglobulin E (Sr IgE). 10-95% of urticaria patients at different ages have been reported to have high levels of Sr IgE. Increased Sr IgE is linked with more sinister manifestations of the disease, such as higher pruritus intensity, frequency, higher wheal scores, systemic symptoms, urticaria persistence, autoimmune comorbidity, and autoimmune family history [6].

Pathophysiology of urticaria is complicated and not studied completely. It is considered that autoantibodies against high-affinity IgE receptors of mast cells are central to mast cell activation and degranulation, which is what causes the release of histamine and other inflammatory mediators that cause the appearance of a wheal and pruritus [7]. In spite of such improvements, a significant percentage of patients have no recognisable triggers. When stimulated, they can be alcohol, hepatitis b virus (HBV), and hepatitis c virus (HCV) infections, some medications, including non-steroidal anti-inflammatory drugs (NSAIDs), and psychological stress. Interestingly, patients have frequently reported food as a possible trigger, but studies have not always shown a causal nature of dietary factors in the pathogenesis of urticaria [8].

Urticaria occurs clinically as either pruritus and wheals with or without angioedema. These symptoms may be spontaneous or induced by physical factors. Angioedema is noted in 0.12 to 39 per cent in patients with urticaria, [9] and 16.2 per cent in those with CSU and 15.3 per cent in patients with co-morbid CSU and CINDU. Physical urticaria Dermographism is a typical type of urticaria and occurs in about 0.12% of patients [10]. The frequency of high Sr IgE in patients with urticaria in our cohort has not been studied despite the fact that diagnostic tools are available. In addition, the correlation between high Sr IgE and the clinical features, including age, gender, atopy, dermographism, urticaria type, eosinophilia, and response to antihistamines, is not well developed. It is important to identify these relationships, especially when determining therapeutic choices, such as an anti-IgE biologic agent, to use in a selective group of patients.

Considering such gaps, the current study seeks to critically assess the clinical and laboratory profile of patients with urticaria. Namely, the research aims to define the demographic and clinical variables of the patients with urticaria (age, sex, urticaria type, chronicity, dermographism, atopy, angioedema, and the response to antihistamine treatment). Moreover, the research has a goal to evaluate the percentage of patients having increased Sr IgE, eosinophilia, basophilia and seropositivity to hepatitis B and C viruses. Lastly, this paper aims at finding out the relationship between high levels of Sr IgE and clinical parameters thus giving an idea on the severity of the disease, responsiveness of the treatment, and prospects of anti-IgE therapy.

Methodology

Study Design: This study was a record-based retrospective cross-sectional study conducted to evaluate the clinical and laboratory profile of patients diagnosed with urticaria and to assess their response to antihistamine therapy. The study involved systematic review and analysis of previously documented medical records without any direct patient interaction or intervention.

Study Area: The study was conducted in the Department of Skin and VD at Bhagwan Mahavir Institute of Medical Sciences, Pawapuri, Nalanda, Bihar, India

Study Duration: The study was carried out over a period of seven months from March 2025 to September 2025.

Sample Size: A total of 34 patients (N = 34) diagnosed with urticaria and fulfilling the predefined inclusion criteria were included in the study. All eligible records available within the study period were considered to ensure complete enumeration of cases.

Sample Population: The study population comprised newly diagnosed, treatment-naïve patients with urticaria who attended the outpatient clinic of the Department of Skin and VD during the specified study period. Patients of both genders and all age groups were included, provided their records contained complete clinical and laboratory documentation relevant to the study objectives.

Data Collection: Data were collected retrospectively from patient case records using a structured data extraction format designed specifically for the study. Sociodemographic variables such as age, gender, and duration of illness were recorded. Clinical variables included type of urticaria (acute or chronic), presence of angioedema, history of atopy, classification as spontaneous or inducible urticaria, presence of dermographism, and documented response to antihistamine therapy. Laboratory parameters reviewed included serum Immunoglobulin E (IgE) levels, eosinophil count, basophil count, and serological status for Hepatitis B and Hepatitis C. Serum IgE levels ≥100 IU/mL were considered elevated. Eosinophil counts ≥6% and basophil counts ≥3% were regarded as raised based on institutional laboratory reference values. Response to antihistamine therapy was categorized as complete, partial, or poor/no response according to documentation in follow-up records.

Inclusion Criteria

- Patients with a confirmed clinical diagnosis of urticaria.
- Newly diagnosed and treatment-naïve cases.

- Availability of complete clinical and laboratory records.
- Patients who received standard antihistamine therapy and had documented follow-up response.

Exclusion Criteria

- Patients with incomplete or missing medical records.
- Patients already on antihistamines or systemic immunosuppressive therapy prior to presentation.
- Patients with urticarial vasculitis or other dermatological conditions mimicking urticaria.

Procedure: Following ethical clearance, case records of patients diagnosed with urticaria during the study period were retrieved from the medical records section of the department. The records were screened based on inclusion and exclusion criteria. Eligible records were reviewed in detail, and relevant data were extracted into a pre-designed proforma. Laboratory findings were interpreted according to hospital reference standards, and antihistamine response was assessed based on follow-up documentation recorded by the treating dermatologist.

Statistical Analysis: The collected data were entered into Microsoft Excel and subsequently analyzed using Statistical Package for Social Sciences (SPSS) version 22.0. Descriptive statistics including mean, standard deviation, median, frequency, and percentage were used to summarize the data. Associations between categorical variables were evaluated using the Chi-square test or Fisher's exact test where appropriate. Differences in mean values between groups were assessed using the independent t-test or Analysis of Variance (ANOVA). Multivariable regression analysis was performed to identify predictors of antihistamine response where applicable." A p-value of less than 0.05 was considered statistically significant at a 95% confidence interval.

Result

Table 1 summarizes the sociodemographic characteristics of 34 patients with urticaria. Regarding age, 2 patients (5.9%) were <20 years, 7 (20.6%) were 20–29 years, 9 (26.5%) were 30–39 years, and 16 (47%) were ≥40 years, indicating a predominance of middle-aged and older adults. Males comprised 20 patients (58.8%) and females 14 patients (41.2%), showing a slight male predominance. The duration of clinic attendance varied, with 10 patients (29.4%) attending for <6 weeks, 9 patients (26.5%) for 6–12 weeks, 5 patients (14.7%) for 13–36 weeks, and 10 patients (29.4%) for >36 weeks. Overall, most patients were middle-aged males, with a substantial proportion attending the clinic for extended periods.

Table 1: Sociodemographic Characteristics of Patients with Urticaria (N = 34)

Variables	n	%
Age Group (years)		
< 20	2	5.9
20–29	7	20.6
30–39	9	26.5
≥ 40	16	47
Gender		
Male	20	58.8
Female	14	41.2
Duration of Clinic Attendance (weeks)		
< 6	10	29.4
6–12	9	26.5
13–36	5	14.7
> 36	10	29.4

Table 2 describes the clinical profile of 34 patients with urticaria. The majority had chronic urticaria (≥6 weeks) with 31 patients (91.2%), while only 3 patients (8.8%) had acute urticaria (<6 weeks). Spontaneous urticaria was more common, seen in 22 patients (64.7%), compared to inducible urticaria in 12 patients (35.3%). Dermographism was present in 13 patients (38.2%) and absent in 21 patients (61.8%). Angioedema occurred in 14 patients (41.2%), while 20 patients (58.8%) did not exhibit this feature. A history of atopy was noted in 11 patients (32.4%), with the remaining 23 patients (67.6%) having no such history. Overall, chronic spontaneous urticaria without dermographism or angioedema was the predominant presentation, and about one-third had a background of atopy.

Table 2: Clinical Profile of Patients with Urticaria (N = 34)		
Variables	**n**	**%**
Duration of Urticaria		
< 6 weeks (Acute)	3	8.8
≥ 6 weeks (Chronic)	31	91.2
Type of Urticaria		
Spontaneous	22	64.7
Inducible	12	35.3
Dermographism		
Present	13	38.2
Absent	21	61.8
Angioedema		
Present	14	41.2
Absent	20	58.8
History of Atopy		
Present	11	32.4
Absent	23	67.6

Table 3 summarizes the laboratory parameters of 34 patients with urticaria. Elevated serum IgE (≥100 IU/mL) was observed in 14 patients (41.2%), while 20 patients (58.8%) had normal IgE levels. Eosinophilia (≥6%) was present in 9 patients (26.5%), with the majority (25 patients, 73.5%) having normal eosinophil counts. Basophilia (≥3%) was rare, occurring in only 1 patient (2.9%), while 33 patients (97.1%) had normal basophil counts. Hepatitis B infection was detected in 3 patients (8.8%), whereas 31 patients (91.2%) were negative. None of the patients tested positive for Hepatitis C, with all 34 patients (100%) being negative. Overall, elevated IgE and eosinophilia were the most common laboratory abnormalities, while viral hepatitis was infrequent in this cohort.

Table 3: Laboratory Parameters of Patients with Urticaria (N = 34)		
Laboratory Variable	**n**	**%**
Elevated Serum IgE (≥100 IU/mL)	14	41.2
Normal Serum IgE	20	58.8
Eosinophilia (≥6%)	9	26.5
Normal Eosinophil Count	25	73.5
Basophilia (≥3%)	1	2.9
Normal Basophil Count	33	97.1
Hepatitis B Positive	3	8.8
Hepatitis B Negative	31	91.2
Hepatitis C Positive	0	0
Hepatitis C Negative	34	100

Table 4 shows the response to antihistamine therapy among 34 patients. A majority of patients, 23 (67.6%), achieved a complete response, while 6 patients (17.6%) had a partial response. Poor or no response was observed in 5 patients (14.8%). Overall, most patients responded favorably to antihistamine therapy, with two-thirds experiencing complete symptom relief.

Table 4: Response to Antihistamine Therapy (N = 34)		
Response Category	**n**	**%**
Complete Response	23	67.6
Partial Response	6	17.6
Poor/No Response	5	14.8

Discussion

The results of the current research indicate that urticaria is most common in individuals aged over 40 years (47% of patients). Such age distribution is correlated with the data of Nigeria and Korea, as chronic urticaria was more prevalent in patients who were older than 40 years (Seo and Kwon, 2018; Akinboro et al., 2015) [11,12]. In a similar manner, research in the United Kingdom and Argentina has recorded an increased mean age among urticaria patients (Parisi et al., 2018; Ghazanfar et al., 2018) [5,13]. Conversely, a Chinese study indicated a smaller mean age, indicating the presence of regional and genetic variations in the presentation of the disease (Zhong et al., 2014) [2]. Curiously,

Raciborski et al. (2018) [14] in Poland did not notice any significant age-related difference in the prevalence of urticaria, which means that the correlation between aging and urticaria is possibly contributed by environmental or lifestyle factors peculiar to any population. Another difference is that there is a male predominance in our study (58.8%), whereas in many studies, the prevalence of this type of treatment is higher among females (Magen et al., 2013) [15]. The causes of this disparity are not well understood, but sociocultural elements or use of healthcare services may be one of the factors explaining the dominance of males in our cohort."

The most common type was chronic urticaria (91.2 of our patients) which is in agreement with other studies that indicate that chronic urticaria is more commonly identified in clinical practice as compared to acute urticaria (Maurer et al., 2011; Kumaran et al., 2018) [3,4]. The acute urticaria is usually characterized by a specific trigger (drug or food), which may result in rapid resolution, which means it is less prevalent (Sanchez-Borges et al., 2017). A urticaria was seen to be spontaneous in 64.7% of the patients with inducible forms totaling 35.3%. This is consistent with the findings of Parisi et al. (2018) [5] and Kumaran et al. (2017) [4], who found that spontaneous urticaria was the predominant subtype. Nevertheless, inducible urticaria was more prevalent, as compared to the spontaneous ones (Sánchez et al., 2017) [8], which supports the role of the size of the studies and diagnostic criteria. Dermographism, which is a sign of physical urticaria, was positive in 38.2% of patients, which is higher than Sánchez et al. (2017) [8] and Seo and Kwon (2018) [11] have claimed but could be attributed to smaller samples or different methods. Consistent with the results of Curto-Barredo et al. (2018) [16] and Choi et al. (2018) [9], the coexistence of angioedema in 41.2% of the patients, although it was higher than that observed in the Korean cohorts, indicates geographical differences in clinical manifestation.

Laboratory tests indicated that 41.2% of patients had high IgE in serum and this is consistent with other research studies that revealed that 9 to 95 percent of patients with urticaria could have a high level of IgE in the serum (Kessel et al., 2010; Kumaran et al., 2018) [6,4]. Higher IgE levels are frequently linked to more severe or chronic disease, increased intensity of pruritus, and lack of response to regular treatment (Kim and Park, 2012; Kessel et al., 2010) [17,6]. The rate of eosinophilia was 26.5% in the group of patients, which is lower than the commonly reported data in outpatient clinics, where patients only have the lesion after healing (Subramony et al., 2014) [18]. Low rate of basophilia (2.9) reflects the past reports that basophil numbers are usually decreased in urticaria as a result of ingestion during lesion development (Grattan et al., 2003) [19]. The prevalence of hepatitis B in 8.8% of the patients is congruent with the outcomes of Chinese and international studies in which hepatitis B was found to cause urticaria but hepatitis C was not, as per the findings by Kolkhir et al. (2018) [20]. This indicates that it is possible that hepatitis B and not hepatitis C is more relevant to urticaria in our population. The level of stool ova and parasite positivity was low, which is consistent with previous reviews indicating that helminth-inflicted urticaria is at low prevalence (Kolkhir et al., 2018; Caffarelli et al., 2013) [20,21].

A response rate of 67.6, 17.6 and 14.8 percent to antihistamines, respectively, was a complete response, partial and poor, respectively. These findings confirm the known role of histamine as a key player in the pathogenesis of urticaria and the efficacy of antihistamines as first-line treatment (Godse et al., 2018) [22]. We have found the same results as Lee et al. (2017) [23] who reported similar therapeutic effects, but in their analysis, a greater percentage of patients were treated with antihistamines alone only. Another adverse clinical indicator, which is progressive in 14.8% of our cohort, is non-response to antihistamines, which has been identified as a poor prognostic indicator (Moestrup et al., 2017) [1], frequently leading to biologics escalation (Ghazanfar et al., 2018) [13].

Out of 32.4% of patients, atopy was reported, which is in line with prior evidence of a connection between urticaria and conditions mediated by IgE that could lead to chronicity and severity of the disease (Kumaran et al., 2018; Kim and Park, 2012) [4,17]. The level of education of the patients could have been high leading to easier compliance with therapy and prevention of triggers, which had an indirect effect on the outcome of the treatment. Smoking was not very widespread in our population and was not observed to be related to urticaria, which is consistent with other previous studies (Sánchez et al., 2017; Lee et al., 2017) [8,23]. In general, the findings highlight the multifactorial characteristics of urticaria, demographic, clinical, and laboratory factors that affect the disease course and response to treatment. The parallels and differences with other foreign cohorts emphasise the necessity of managing them regionally and conducting further prospective research.

Conclusion

The paper emphasizes that urticaria is a disease of middle-aged adults and is slightly more common in the male population. The vast majority were chronic and spontaneous, and a significant percentage received dermographism or an angioedema or a history of atopy. Lab tests showed that a subgroup of patients possessed high serum IgE and eosinophilia with basophilia and viral markers being rare. Notably, most patients responded positively to antihistamine treatment with a small percentage of patients responding partially or not responding at all which

highlights the unstable nature of the disease and the necessity of tailor-built management plans in urticaria.

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