CLINICAL AND LABORATORY PROFILES IN PATIENTS WITH ACUTE URTICARIA AND RELATED FACTORS

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ABSTRACT

Objectives: To characterize the clinical and laboratory profiles of patients with acute urticaria and to examine possible associated factors.

Materials and methods: A retrospective, cross-sectional study was conducted on 975 patients diagnosed with acute urticaria at the National Hospital of Dermatology and Venereology from January 2024 to August 2024. Data on clinical and laboratory characteristics and related factors (medical history, personal history) were collected from medical records.

Results: Among the 975 patients, females predominated the cohort (40.6%). 35.4% of patients reported previous episodes of acute urticaria. A personal history of atopy was noted in 15.3% of patients. Most patients had no evident triggering factor; among triggers, infection was the most common (15.8%), particularly in children who had higher markers of infection than adults ($P < 0.05$). 25% of patients with acute urticaria presented with both wheals and angioedema. Additionally, elevated total IgE levels were identified in 74.1% of patients.

Conclusions: Acute urticaria was most prevalent among adult women. The majority of patients presented without a clear triggering factor, though infections were more commonly implicated in pediatric cases. Elevated IgE levels were prevalent across the study population.

Keywords: *IgE, acute urticaria, angioedema.*

1. INTRODUCTION

Urticaria is a common dermatologic condition affecting both adults and children, with a prevalence of 15 - 20% in the general population.[1] It is characterized by erythematous macules and wheals accompanied by pruritus, with or without angioedema, which typically resolve within 24 hours. The condition can be triggered by various factors, including physical stimuli, foods, drugs, infectious agents, or it can be a manifestation of an underlying inflammation or malignancy. However, the majority of urticaria cases are idiopathic.[2]

Urticaria is classified into acute and chronic forms based on the disease's progression. Acute urticaria (AU) is defined as urticaria lasting less than 6 weeks, while chronic urticaria (CU) is defined as the recurrence of urticaria on at least 2 days per week for a minimum of 6 weeks.[3]

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Most cases of AU resolve within one week, and less than 40% of AU cases progress to CU[3]. The diagnosis of AU is primarily based on a meticulous medical history and clinical manifestation. Prognostic factors for disease severity include age, triggering factors (if present), the severity of clinical manifestations, a personal history of allergy, and associated symptoms such as fever or angioedema.[4] Globally, several studies have examined the clinical and associated factors of AU. A study by M. Sanchez Borges et al. (2015) involving 248 patients found that AU was most prevalent in middle-aged women, with spontaneous (idiopathic) and drug-induced urticaria being the most common subtypes.[5] Another study by S. Cormet et al. (2013) identified drugs and infections as the two most frequent triggers for AU.[7]

In Vietnam, there is a dearth of data on AU, particularly concerning its underlying causes and triggering factors, with most existing studies focused on pediatric populations.[11] This study was therefore,aimed to characterize the clinical, laboratory, and associated factors of AU.

2. MATERIALS AND METHODS

Study population

The study population consisted of 975 patients diagnosed with AU at the Urticaria & Chronic Urticaria Clinic and those admitted for with the definitive diagnosis of AU at the National Hospital of Dermatology and Venereology between January 2024 and August 2024. Diagnostic criteria of AU was based on the characteristic primary skin lesions of urticaria (erythematous and/or pink macules and/or wheals, which appear and resolve completely within 24 hours), with or without angioedema, and a disease duration of less than 6 weeks. Patients with skin lesions persisting for more than 24 hours or soliatry angioedema were excluded from our study.

Study design

A retrospective,cross-sectional study was conducted.Patient data was derived from medical records. All patients diagnosed with AU at the Urticaria Clinic and the department of inpatient care at the National Hospital of Dermatology and Venereology from January 2024 to August 2024 were screened. Information regarding demographic, clinical characteristics (general condition, symptoms of angioedema, respiratory and gastrointestinal symptoms, signs of organ-specific infections), laboratory findings (complete blood count, C-reactive protein, IgE levels), and related factors (medical and personal history) were obtained.

Data analysis

Data were encoded and analyzed using SPSS version 16.0. Quantitative data were presented as mean ± standard deviation (for normally distributed data) or median and interquartile range (for non-normally distributed data). Qualitative data were expressed as percentages. The Chi-square test or Fisher's exact test was used for statistical analysis, with $p < 0.05$ considered as statistical significance.

Ethical considerations

This study received the NHDV Institutional Review Board approval and adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for observational studies.

3. RESULTS

3.1. Patient distribution by sex

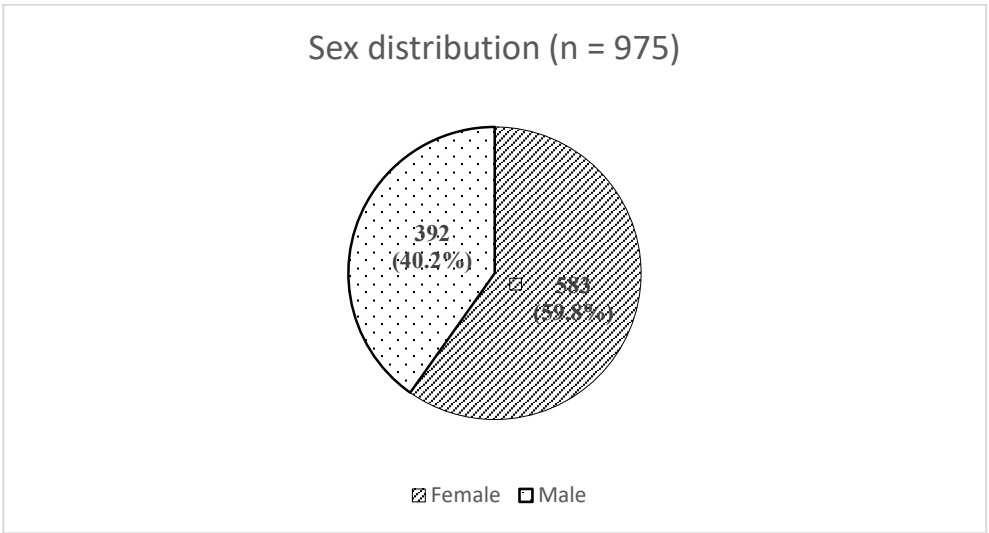

Figure 1. Patient distribution by sex (n = 975)

The study included 975 patients with AU, with a predominance of females (59.8%).

3.2. Patient age characteristics

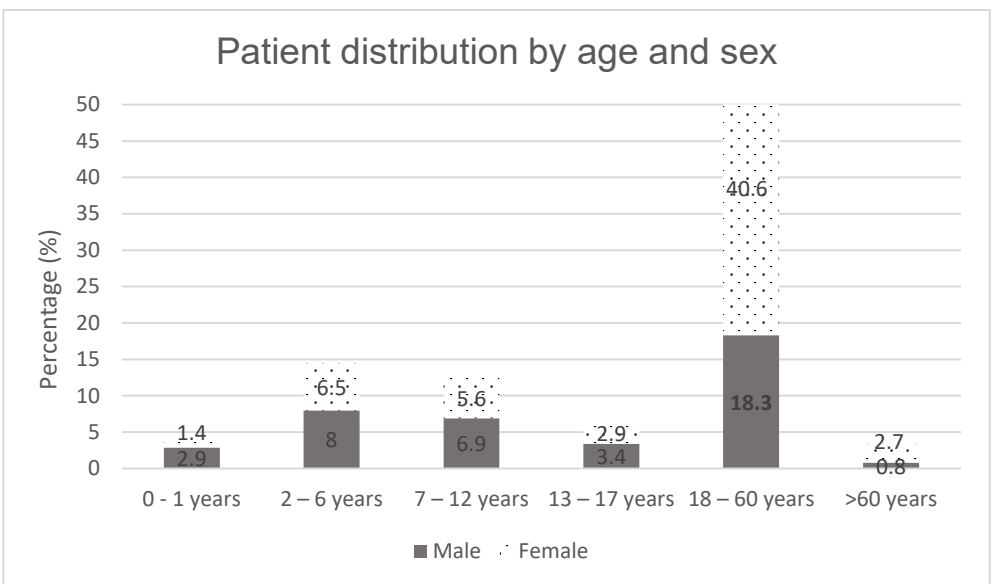

Figure 2. Patient distribution by age and sex

AU was most prevalent in the 18 - to 60-year-old group (58.9%) and least common in the elderly (> 60 years) (3.6%). While there was no significant gender difference in the pediatric group (< 18 years, $p < 0.05$), a notable female predominance was observed in adults and the elderly, with the female-to-male ratio exceeding 2:1 ($p < 0.05$).

3.3. Characteristics of a history of acute urticaria

Table 1. Age of onset and history of acute urticaria (N = 975)

	Children (0-17 years) (n1 = 366)	Adults (≥ 18 years) (n2 = 609)	p-value	Total (N = 975)
Median age of first onset (years)	5 (2 - 9)	29 (22 - 40)	< 0.001[a]	21 (7 - 33)
History of previous acute urticaria	122 (33.3%)	223 (36.6%)	0.299[b]	345 (35.4%)
Number of previous acute urticaria episodes (median (IQR))	0 (0 - 2)	0 (0 - 1)	0.9376[a]	0 (0 - 1)

[a]Mann-Whitney U test, bChi-square test.

The median age of onset in children under 18 was 6.5 years, while in adults over 18, it was 32.3 years. There was no significant difference in the prevalence of AU history or the number of AU flare-ups between adults and children ($p > 0.05$). Over 30% of patients had experienced at least one previous flare-up of AU (33.3% in children and 36.6% in adults). The median number of prior AU flare-ups was 1.8.

3.4. Characteristics of triggering factors

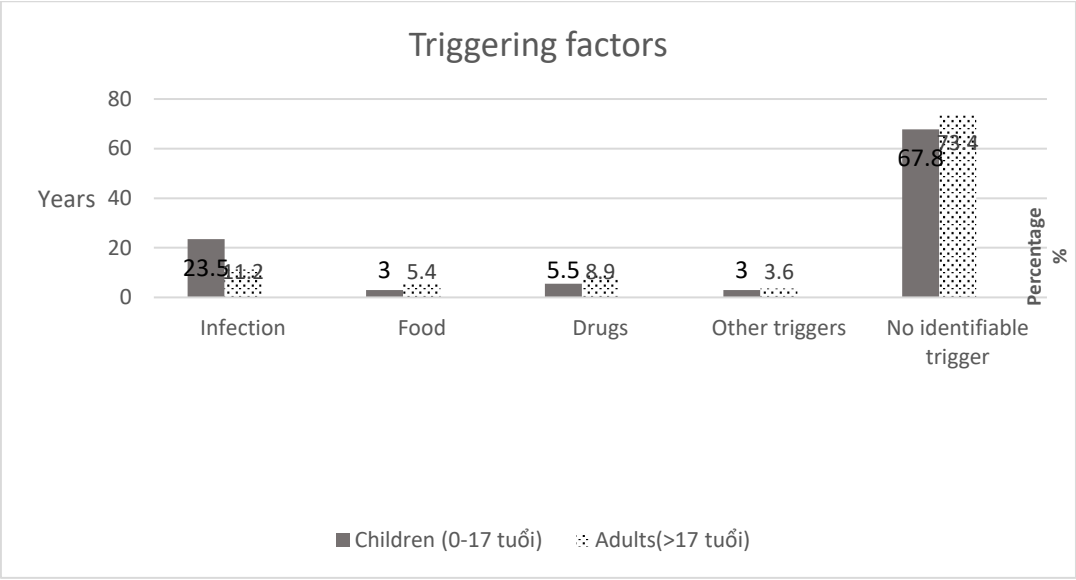

Figure 3. Characteristics of triggering factors

Non-identifiable triggers and infection were the most frequently noted factors in both adult and pediatric AU patients. However, the prevalence of infection as a trigger was significantly higher in children (23.5%) compared to adults (11.2%) ($p < 0.05$).

3.5. History of the study subjects

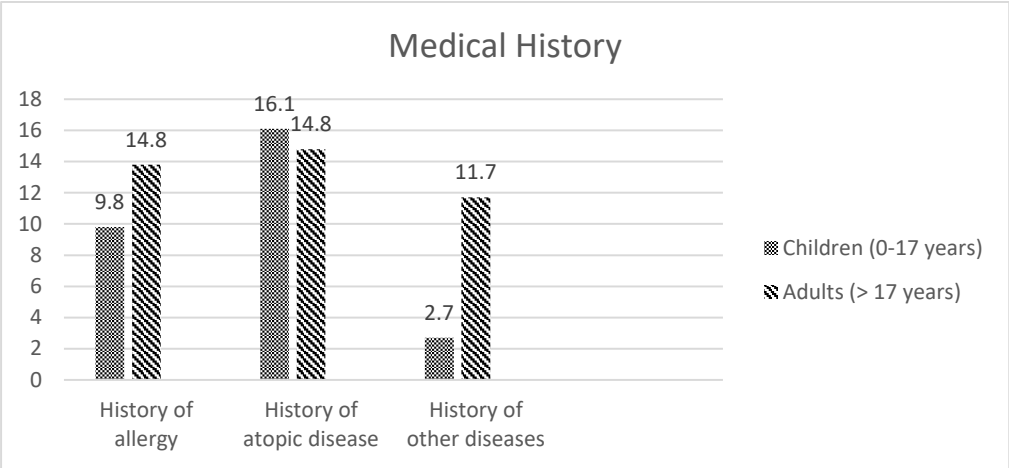

Figure 4. History of the study subjects

The prevalence of a history of allergy and atopic disease was similar between adult and pediatric AU patients ($p > 0.05$). However, the adult group showed a significantly higher rate of other comorbidities (11.7%) compared to the pediatric group (2.7%) ($p < 0.05$).

3.6. Accompanying Symptoms of Acute Urticaria

Table 2. Accompanying symptoms of AU

Symptoms	Children (0-17 years) (n1 = 366)		Adults (≥ 18 years) (n2 = 609)		Total (N = 975)		p
	n	%	n	%	n	%	
Angioedema	88	24.0	156	25.6	244	25.0	0.583[a]
Fever	16	4.4	10	1.6	26	2.7	0.01[a]
Gastrointestinal symptoms	23	6.3	21	3.5	44	4.5	0.039[a]
Respiratory symptoms	33	9.0	32	5.3	65	6.7	0.023[a]
Symptoms of infection in other organs	4	1.1	8	1.3	12	1.2	1[b]

[a]Chi- square test, bFisher's exact test.

Angioedema was the most common accompanying symptom of AU (25%), with no significant difference in prevalence between adults and children. Gastrointestinal symptoms, respiratory symptoms, and fever were significantly more common in children than in adults ($p < 0.05$).

3.7. Laboratory characteristics of the study subjects

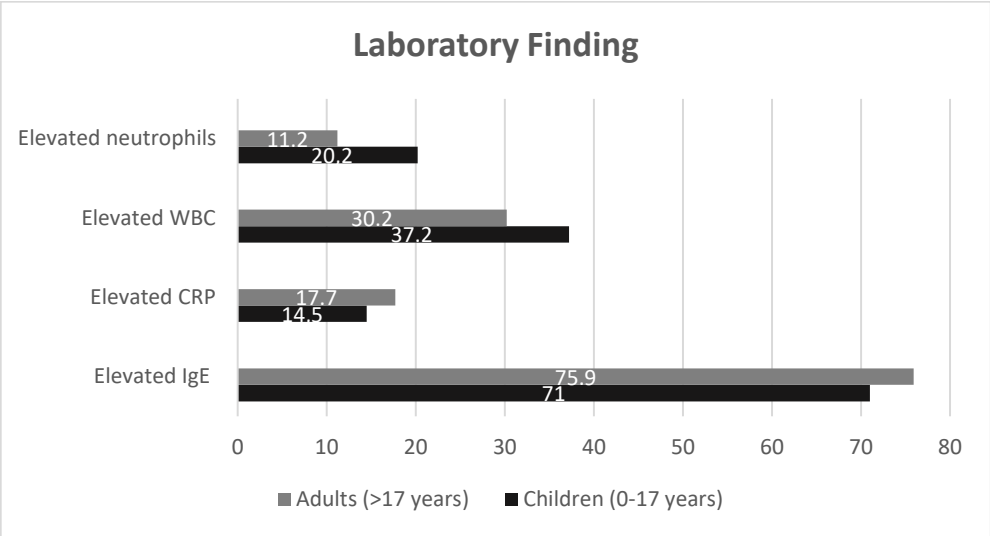

Figure 5. Laboratory finding

Over 70% of AU patients in both the adult and pediatric groups showed elevated serum IgE levels. white blood cell and neutrophil counts were significantly higher in the pediatric group compared to the adult group ($p < 0.05$).

4. DISCUSSION

AU is a prevalent condition frequently encountered in dermatology clinics. Our from January 2024 to August 2024 at the National Hospital of Dermatology and Venereology identified 975 patients with AU. Of these, 59.8% were female, and 40.2% were male. Adults accounted for the majority of patients (62.5%), compared to children (37.5%). The prevalence of AU was particularly high among adult females (40.6%) compared to other demographic groups. These findings are consistent with a 2015 study by M. Sánchez-Borges et al., which reported that among 248 AU patients, 65.7% were female and 34.3% were male; adults were more affected than children (71.4% vs. 28.6%), and the prevalence among adult females was very high (52%).[5] A more recent study by Edmad.M et al. (2024) reported similar results, with females accounting for 66.4% of 131 AU patients and a higher prevalence in adults than in children (74.0% vs. 26.0%).[6] These findings collectively indicate that AU is most common in adults, with a notable predominance in the adult female population.

Regarding the history of prior AU episodes, 35.4% of patients experienced at least one previous occurrence. The mean number of prior flare-ups was 1.8 ± 4.03. In a 2012 study by S. Cormet et al., the proportion of patients with a history of AU was higher at 41.6%.[7] This highlights that a significant number of patients presenting with AU have a history of the condition, which is a crucial for clinical assessment.

Identifying the triggers inducing urticaria remains a clinical challenge, as the majority of AU cases are idiopathic. In our study, most patients had no identifiable trigger (73.4% of adults and 67.8% of children). Among identifiable triggers, infection was the most common causatality, accounting for 15.8% of cases. S. Cormet et al.

found a higher incidence of infection as a trigger (35.6%), twice more than the rate observed in our Vietnamese cohort.[7] This discrepancy may be attributable to the differences in the diagnostic laboratory workup for AU patients between the two studies.

It is often suggested that AU has a higher incidence in individuals with a history of atopic disease.[4] In our study, the prevalence of a history of atopic conditions such as allergic rhinitis, bronchial asthma, or atopic dermatitis among AU patients was 15.3%, with no significant difference between adults and children (14.8% and 16.1%, respectively). This is in line with findings from M. Sánchez-Borges and S. Cormet, who reported rates of allergic rhinitis of 9.8% and 14.6% (19),[7] respectively.

There was no significant difference in the history of allergy between children and adults (9.8% and 13.8%, respectively). The most commonly reported allergens in our study were foods (seafood, silkworm pupae, milk) and drugs (antibiotics, analgesics). According to V. Legrain et al. (1990), the prevalence of allergy is high in infants under 6 months, particularly cow's milk allergy (75%). After 6 months of age, the allergy rate is comparable to that of adults, and there is an association between a history of allergy and recurrent urticaria.[12]

Accompanying symptoms of urticaria are important for classifying disease severity and guiding treatment. Among these symptoms, including angioedema, fever, gastrointestinal and respiratory symptoms, and signs of organ-specific infection, angioedema was the most frequent, occurring in 25% of patients. This frequency is lower than that reported in studies by S.M. Amar (2008) and Powell RJ (2015), where angioedema was present in 40% of all urticaria patients.[9,10]

The difference may be due to their inclusion of both acute and chronic urticaria in their study populations.

Regarding laboratory findings, our study revealed that a high proportion of patients had elevated IgE levels, with a prevalence of 74.1% (71.0% in children and 75.9% in adults). This is substantially higher than the 20.3% reported in the study by M. Sánchez-Borges.[6] The significant difference in sample size between the two studies (79 patients in the Sánchez-Borges study versus 975 in ours) may account for this variation.

5. CONCLUSIONS

AU is a common condition with a similar gender distribution in children but a predominance in adult females. In most cases, no specific trigger is identified, and patients often have elevated total IgE levels. Infection as a trigger and elevated inflammatory markers are more frequently observed in the pediatric population.

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Conflict of interest: The authors declare that there is no conflict of interest.

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