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ORIGINAL ARTICLE

Chronic urticaria in children treated in a private basic hospital in the city of Portoviejo

Urticaria crónica en niños atendidos en un hospital básico privado de la ciudad de Portoviejo

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Abstract Chronic urticaria is defined as spontaneously appearing hives, daily or almost daily, for most days for more than 6 weeks. This study, carried out at the Private Basic Hospital "Clínica Dei Bambini" in Portoviejo between February 2023 and February 2024, analyzed this condition's clinical and epidemiological profile in pediatric patients. Thirty-two patients between 1 and 18 years of age were included, whose anonymized medical records were reviewed. The observational, descriptive, and cross-sectional study used theoretical and empirical methods and applied descriptive statistics to process the data. The results indicated that most cases corresponded to children aged 1 to 10 years, predominantly males, living in urban areas and with parents of middle socioeconomic level and basic or secondary education. In most cases, urticaria was classified as "unspecified", with no family history of the disease. Food was the most common trigger, followed by exposure to chemicals and medications. The most common symptoms included hives, itching, fever, and shortness of breath. The average duration of episodes was 6 to 8 weeks, and the most commonly used treatment was first-line second-generation H1 antihistamines, mainly loratadine.

Keywords chronic urticaria, chronic spontaneous urticaria, epidemiology, clinical manifestations.

Resumen La urticaria crónica se define como la presencia de habones de aparición espontánea, diarios o casi diarios, durante la mayoría de los días por más de 6 semanas. Este estudio, realizado en el Hospital Básico Privado "Clínica Dei Bambini" en Portoviejo, entre febrero de 2023 y febrero de 2024, analizó el perfil clínico y epidemiológico de esta condición en pacientes pediátricos. Se incluyeron 32 pacientes de entre 1 y 18 años, cuyas historias clínicas anonimizadas fueron revisadas. El estudio, de tipo observacional, descriptivo y transversal, utilizó métodos teóricos y empíricos y aplicó estadística descriptiva para procesar los datos. Los resultados indicaron que la mayoría de los casos correspondieron a niños de 1 a 10 años, predominantemente varones, residentes en áreas urbanas y con padres de nivel socioeconómico medio y educación básica o secundaria. En la mayoría de los casos, la urticaria fue clasificada como "no especificada", sin antecedentes familiares de la enfermedad. Entre los factores desencadenantes, destacaron los alimentos, seguidos por la exposición a químicos y medicamentos. Los síntomas más comunes incluyeron habones, prurito, fiebre y dificultad respiratoria. La duración promedio de los episodios fue de 6 a 8 semanas, y el tratamiento más utilizado fue el de primera línea, con antihistamínicos H1 de segunda generación, principalmente loratadina.

Palabras clave urticaria crónica, urticaria crónica espontánea, epidemiología, manifestaciones clínicas.

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PUBLIS EDITORIAL

Introduction

Urticaria was described as a skin disorder whose characteristic lesion was the wheal, defined as a central edematous area surrounded by erythema that disappeared with pressure and caused pruritus. Angioedema (AE) sometimes accompanies urticaria, manifesting as edema affecting the deeper layers of the skin or mucous membranes. Urticaria, classified as acute or chronic, particularly chronic urticaria (CU), represented a significant socioeconomic burden globally. However, its worldwide epidemiology and geographical and temporal trends have not yet been fully explored (Coronado et al., 2021).

CU was characterized by the recurrent presence of hives or wheals (Zamitiz-Hernández et al., 2021; Sedó-Mejía et al., 2015), frequently accompanied by pruritus, lasting longer than six weeks. Its distinctive feature was erythema and edema of the superficial layer of the skin or mucous membranes (Zuberbier et al., 2018). Occasionally, this condition appeared alongside AE (Kanani et al., 2018). According to the latest international guidelines from the European Academy of Allergy & Clinical Immunology, the World Allergy Organization (EAACI/GA1LEN/EDF/WAO), and the Mexican Urticaria Guide, it was defined as the presence of hives, angioedema, or both, characterized by three distinctive elements: a central wheal of variable size, generally surrounded by fixed erythema, accompanied by intense pruritus or burning; the eruptions tended to move across the body, reaching their peak between 8 and 12 hours, and the skin returned to its normal state in less than 24 hours (Zuberbier et al., 2018). The triggering factors varied according to the type of urticaria, with the most common subtypes being spontaneous urticaria, papular urticaria, drug-induced urticaria, and dermographic urticaria (Kanani et al., 2018).

Various studies indicated that CU was more common in adults; however, its incidence in the pediatric population has increased in recent years. The estimated prevalence of all forms of urticaria in children ranged between 3 and 6%. Some reports estimated that between 15 and 23% of the general population would experience an episode of urticaria at some point in their lives (López et al., 2020). CU had a significant impact on quality of life, causing physical and social discomfort as well as psychological disorders in those who suffered from it (Arias-Cruz et al., 2018).

In CU cases, wheals or angioedema appeared daily or almost daily for six or more consecutive weeks (Mora, 2022). Urticarial wheals, surrounded by erythema, were frequently accompanied by pruritus, although they were sometimes associated with a burning sensation. The most common form of CU was spontaneous, and approximately 50% of cases was resolved within five years. This condition was not classified as allergic, so extensive blood or skin tests were not routinely recommended. Studies indicated that 40% of children presented only wheals, 10% only AE, and 50% both. The prognosis was more favorable in children than adults (Zamitiz-Hernández et al., 2021).

Chronic urticaria represents a diagnostic and therapeutic challenge among pediatric dermatological diseases due to its heterogeneous nature and impact on patient's quality of life. In this context, the present study aimed to determine chronic urticaria's clinical and epidemiological profile in children treated at the "Clínica Dei Bambini" Private Basic Hospital in Portoviejo.

Methodology

The present study adopted a qualitative-quantitative approach with an observational, descriptive, and cross-sectional design. The research was conducted in the outpatient and pediatric hospitalization areas of the "Clínica Dei Bambini" Private Basic Hospital in Portoviejo, Manabí, Ecuador. The population and sample consisted of an anonymized database collecting information from 32 medical records of pediatric patients aged 1 to 18 years diagnosed with chronic urticaria between February 2023 and February 2024.

Due to their finite and manageable number, all cases that met the inclusion criteria were analyzed. Patients with incomplete medical records and those referred to other healthcare centers were excluded. The methodology included an analytical-synthetic approach, breaking data into its constituent parts and integrating them for a comprehensive analysis. Manually collected data were processed and tabulated in Microsoft Excel, using descriptive statistics to calculate absolute frequencies and percentages.

Data confidentiality was strictly safeguarded, ensuring patient anonymity and preventing any compromise to their integrity. The authors declared no conflicts of interest in conducting the study. The Human Research Ethics Committee (CEISH-UTM) approved the protocol under the code CEISH-UTM-INT_24-06-13_YCMM.

Results and discussion

The sociodemographic characteristics of the participants are shown in Table 1. The highest prevalence of cases was observed in the 1 to 5-year-old age group, accounting for 40.6%, followed by children aged 6 to 10 years, with 34.4%. Prevalence progressively decreased in the 11 to 15-year-old and 16 to 18-year-old groups, with percentages of 18.8 and

6.3%, respectively. These results suggest that chronic urticaria was more common in younger children, with a decline in frequency as age increased, which could reflect the progressive development of the immune system associated with growth.

Table 1. Sociodemographic factors of parents and children diagnosed with urticaria treated at "Clínica Dei Bambini" in Portoviejo

Indicator	Frequency	Percentage
Age of the children (years)		
1 a 5	13	40.6
6 a 10	11	34.4
11 a 15	6	18.8
16 a 18	2	6.3
Gender of the children		
Female	10	31.3
Male	22	68.8
Place of origin		
Rural	3	9.4
Urban	29	90.6
Educational level of the parents		
Primary	13	40.6
Secondary	12	37.5
Third level	7	21.9
Economic level of the parents		
Low	0	0
Middle	32	100.0
High	0	0

The age distribution observed in this study coincided with that reported by Sánchez-Borges et al. (2014), who, in a group of 52 children with chronic urticaria, identified that the most frequent presentation was in children aged 1 to 7 and less common in adolescents. This behavior has been linked to the immaturity of the immune system and a higher susceptibility to environmental triggers during the early stages of life.

Regarding the distribution by sex, 68.8% of the cases were male, while 31.3% were female. Chronic urticaria is more common in boys than in girls, possibly due to biological, environmental, or behavioral factors that influence each sex differently. Zamitiz-Hernández (2021) reported a prevalence of chronic urticaria in children of 0.1 to 0.3%, being more frequent in males.

As for the origin of the children studied, 90.6% came from urban areas, while only 9.4% resided in rural areas. This urban predominance could be related to specific environmental and lifestyle factors in urban areas that influence the prevalence of chronic urticaria in the pediatric population. Factors such as air pollution and urban lifestyles have been noted as contributors to the increase in cases. According to López et al. (2020), there is greater exposure to allergens and environmental pollutants in urban areas.

It was found that 40.6% of the parents of the children had primary education, 37.5% had secondary education, and 21.9% had a higher education level. These data suggested that parents' educational level could be linked to the management and prevention of the disease, as well as collaboration in the treatment outside the healthcare center, which could influence the quality of life and long-term treatment of the children. Although there are few studies on the educational level of parents of children with chronic urticaria, various authors have emphasized the importance of parents being well-informed and active collaborators in the management of chronic, allergic, or immunological skin diseases. This is because allergic diseases often have a multifactorial origin, involving genetic and environmental factors, posing a challenge for families and physicians (Nevot & Gómez, 2018).

Regarding the economic situation of the families, 100% of the cases corresponded to families with a middle economic level, which could be related to specific risk factors for this group, lifestyle, or exposure to environmental triggers. It is important to note that the "Clínica Dei Bambini" Private Basic Hospital primarily serves a middle socioeconomic population, which could influence the representativeness of the cases studied. Studies such as those by Smith et al. (2017) have pointed out that socioeconomic disparities can affect access to specialized medical care and the ability to manage chronic conditions like urticaria.

Table 2 revealed that 96.9% of the diagnoses were classified as unspecified urticaria, while only 3.1% were classified explicitly as chronic spontaneous urticaria. Chronic spontaneous urticaria (CSU), also known as chronic idiopathic urticaria or chronic urticaria, is a common disorder with an estimated prevalence between 0.5 and 1% of the general population (Marín et al., 2016).

The high proportion of unspecified diagnoses (96.9%) in this study highlighted the need to improve diagnostic accuracy in chronic urticaria cases. Kolkhir et al. (2022) emphasized the importance of implementing advanced diagnostic techniques to differentiate the specific types of urticaria, allowing for more effective and personalized treatment.

In Ecuador, Chérrez-Ojeda et al. (2017) reported that 57% of CSU cases were of idiopathic etiology, while 12% were associated with vasculitic urticaria. These findings suggested

that the etiology of urticaria might vary depending on the geographic region where the disease is studied. 90.6% of the children had no family history of urticaria or allergies, while only 9.4% had such a history. The majority of children with chronic urticaria did not have a family history or any apparent predisposition to develop it.

Table 2. Diagnosis of chronic urticaria in the studied patients

Indicator	Frequency	Percentage
Admission diagnosis		
Spontaneous urticaria	1	3.1
Unspecified urticaria	31	96.9
Family history of urticaria		
Yes	3	9.4
No	29	90.6
Possible causes of chronic urticaria		
Exposure to water	3	9.4
Air conditioning	2	6.3
Food	12	37.5
Medications	4	12.5
Chemicals	11	34.4
Duration of urticaria (weeks)		
6 to 8	24	75.00
12 to 52	7	21.88
More than 52	1	3.13

Zamitiz-Hernández et al. (2021) found a low proportion of patients with a family history of urticaria or allergies, results that were consistent with those of the present analysis (Zamitiz-Hernández et al., 2021). On the other hand, Brüske et al. (2014) suggested that, despite being one of the most common skin diseases, the available epidemiological data on family history of urticaria are limited and inconclusive.

The primary triggers identified in the children of the study included food (37.5%), followed by chemicals (34.4%) and medications (12.5%). However, no specific details were recorded in the medical histories about the types of food, chemicals, or medications involved as possible triggers. Additionally, using air conditioning (cold air) and exposure to water were noted as possible triggers in 6.3 and 9.4% of the cases, respectively.

Ferrá (2023) reported that, in his study with the pediatric population, the most common causes of acute urticaria were viral infections and upper respiratory tract infections. In chronic urticaria cases, hypersensitivity to medications such as non-steroidal anti-inflammatory drugs (NSAIDs) and certain antibiotics, as well as foods, especially in preschool-aged children, predominated. These results were similar to those found in this study.

The results of this research differed from those reported by Mazur et al. (2020), who indicated that most patients (56%) had allergies to medications, with penicillin being the most commonly reported. The existing literature on chronic urticaria has pointed out various triggering factors, including environmental, food-related, and medicinal. It has also been reported that patients with CSU tend to report higher rates of drug allergies compared to the general population.

The duration of urticaria in the majority of cases (75.0%) was between 6 and 8 weeks. 21.88% of the patients experienced symptoms that persisted between 3 and 12 months, while a small percentage (3.13%) had episodes of urticaria that lasted for more than 12 months. These results indicated that, although most patients had a relatively brief disease duration, a significant minority faced prolonged episodes, which might require more sustained and specialized interventions.

Table 3 presents the clinical characteristics of the children treated for chronic urticaria. The medical records did not document a predominant symptom but rather a combination of signs and symptoms. The most frequent symptoms included the presence of hives and irritation in 18.8% of the patients, disseminated hives on the body in 15.6%, and hives accompanied by itching and fever in 12.5%.

Other observed symptoms included difficulty breathing (6.3%), rash (6.3%), sneezing (6.3%), fever (6.3%), swelling of the eyes and lips (6.3%), nasal discharge (3.1%), and digestive issues (3.1%). The diversity of clinical manifestations of chronic urticaria in this age group was noted, highlighting the importance of proper diagnosis and clinical management for this chronic dermatological condition. The results of this study were in line with those reported by Ensina et al. (2022), who observed that hives accompanied by itching and, occasionally, a burning sensation were the most common symptoms. In their population, 40% of children presented only hives during the disease.

The negative impact of symptoms on the children's quality of life has been emphasized. Cruz-Hernández et al. (2019) documented that these manifestations affect pediatric patients' psychological and physical well-being, highlighting the need for a comprehensive approach to managing the disease. In children, chronic urticaria had a more significant

impact on quality of life than adults. Between the ages of 0 and 4 years, children were three times more likely to be hospitalized, and between 20 and 30% of those who experienced an episode of aquagenic urticaria developed chronic urticaria for several years, as reported by Brüske et al. (2014).

The results of this research highlighted the complexity of chronic urticaria in pediatric age and the need for multidisciplinary approaches integrating clinical, epidemiological, and environmental research to improve the prevention, diagnosis, and treatment of this condition in the pediatric popula

Table 3. Clinical characteristics of children diagnosed with chronic urticaria

Clinical manifestations	Frequency	Percentage
Difficulty breathing, rash, itching	1	3.1
Respiratory issues, digestive problems, and itching	2	6.3
Difficulty breathing, itching, hives	2	6.3
Sneezing, hives, itching	1	3.1
Disseminated hives	5	15.6
Hives, itching, and fever	4	12.5
Hives and irritation	6	18.8
Sneezing, nasal discharge, rash	1	3.1
Digestive issues and itching	2	6.3
Rash, itching	2	6.3
Rash and rash	2	6.3
Swelling of eyes and lips, difficulty breathing, hives, itching	2	6.3
Digestive problems, hives, itching	1	3.1
Hives, fever, sneezing	1	3.1

Sánchez-Borges et al. (2024) studied 123 subjects under 18 years old, of which 71 had acute urticaria (57.7%), and 52 had chronic urticaria (42.2%). No statistically significant differences between acute and chronic cases were found in the disease duration. Chronic urticaria had an average duration of 17.4 ± 24 months (1.5-108 months), reflecting a more prolonged evolution of the disease than observed in this study.

The management provided to patients diagnosed with chronic urticaria (Table 4) at the health center where the research was conducted mainly consisted of first-line therapies according to international guidelines for managing this disease.

Table 4. Treatment used in chronic urticaria

Treatment	Frequency	Percentage
H1 Antihistamines (1st generation)		
Diphenhydramine	4	12.5
Corticosteroids	2	6.3
H1 Antihistamines (2nd generation)		
Loratadine	14	43.8
Cetirizine	8	25.0
Desloratadine	4	12.5

Second-generation H1 antihistamines were most frequently used, with Loratadine being the most employed in 43.8% of cases, followed by Cetirizine in 25.0% and Desloratadine in 12.5% of patients.

Second-line treatment, which includes increasing the dose of second-generation H1 antihistamines according to age, was not recorded, nor was Omalizumab prescribed, considered the third-line treatment for chronic urticaria. First-generation antihistamines, such as Diphenhydramine, were used in four patients (12.5%), while systemic corticosteroids were only used in two cases (6.3%).

In contrast, Coronado et al. (2021) reported that most patients in their study received immunotherapy, with only 5% using systemic corticosteroids or calcineurin inhibitors. Approximately half of the patients required the use of two or more different antihistamines, and in total, 81% did not achieve adequate symptom control with a single antihistamine. These results did not align with the findings of the present study.

Sánchez-Borges et al. (2014) reported that all patients in their study were treated with approved doses of non-sedating antihistamines, and 7.6% (four patients) were prescribed combinations of two antihistamines. In their population,

fexofenadine was the most frequently prescribed medication.

Despite advances in available therapies, some patients continued to have unmet needs. Clinical trials are currently underway investigating the efficacy of new treatments, including drugs targeting interleukins 4 and 13 (IL-4 and IL-13), such as dupilumab; IL-5 antagonists, such as benralizumab, mepolizumab, and reslizumab; inhibitors of thymic stromal lymphopoietin (TSLP), such as tezepelumab; anti-Siglec-8 agents; therapies with Bruton's tyrosine kinase inhibitors (rilzabrutinib and remibrutinib); and inhibitors of spleen tyrosine kinase (La Forgia et al., 2023).

Conclusions

The patients analyzed were mainly young male children (1-5 years old) from urban areas, with parents having a primary education level and a middle economic status. Most presented unspecified chronic urticaria, with no family history, and the main triggering factors were foods, followed by chemicals and medications. The most common clinical manifestations included hives, irritation, itching, and fever. The predominant treatment was second-generation H1 antihistamines, especially Loratadine, while corticosteroids and first-generation antihistamines were used in a few cases.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

Author contributions

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Data availability statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Statement on the use of AI

The authors acknowledge the use of generative AI and AI-assisted technologies to improve the readability and clarity of the article.

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