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## A Study on Etiology-Based Therapeutic Approach of Acute Urticaria and Its Disease Outcome



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**Shaly Praveetha K<sup>1\*</sup>, Elayaraja E<sup>1</sup>, Gopalakrishnan G<sup>1</sup>, Kaviarasan P K<sup>2</sup>**

*1- Department of Pharmacy, Annamalai University, Annamalai Nagar 608002, Tamil Nadu, India*

*2- Department of DVL, Government Cuddalore Medical College & Hospital (RMMCH), Annamalai Nagar. India*

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### ABSTRACT

**Aim:** To study on etiology-based therapeutic approach of acute urticaria and its disease outcome. **Methodology:** A prospective cross-sectional observational study (2021-2022) was conducted at the Department of Dermatology, Venereology & Leprosy, GCMC, Chidambaram. The data required for the study was collected from patient case sheets (inpatients), prescriptions (outpatients) and from personal interactions with the patients and/or caretakers. **Result:** Totally 50 patients were enrolled in the study. It was found that acute urticaria affects all ages and both genders. Common etiological factors for acute urticaria were infection (fever, cold and cough), food, drugs, dental caries and unknown bite. The main goal of the treatment of patients with acute urticaria is the complete remission and prevention of urticarial lesions and prevention of recurrence. The most commonly used medications were antihistamines, corticosteroids and antibiotics. Comprehensive diagnostic work up and etiology-based therapeutic approach may cure the disease and prevent recurrence. At the same time all the patients with urticaria therapy must be warned about desired side effects of antihistamines and corticosteroids. Precise diagnostic and therapeutic approaches will benefit the most distressing urticarial illness with or without the occurrence of angioedema. **Conclusion:** We identified that infection was the most common etiological factor. A combined approach with the appropriate course of antihistamines, corticosteroids and antibiotics in acute urticaria can be an ideal approach with varying severity.



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## INTRODUCTION

Urticaria, also known as nettle rash or hives, presents as itchy, transient plaques on skin and mucous membranes, lasting up to 48 hours, often triggered by allergens, physical factors, or underlying illnesses, typically non-contagious but may accompany contagious infections in some instances (1,2). Urticaria, with or without angioedema, is classified into acute (recurrent for up to six weeks) and chronic (flares on most days for over six weeks) forms, often transitioning from acute to chronic, affecting all age groups, with a lifetime prevalence of 20% and chronic urticaria affecting 1% of the population(3).

Acute urticaria, lasting under 6 weeks, often resolves within hours to days and is commonly triggered by factors like foods, medications, infections, and physical stimuli (heat, cold, pressure, sun, exercise, and vibration). Potential drugs include aspirin, NSAIDs like ibuprofen, ACE inhibitors, and codeine. Diagnosis involves evaluating individuals with short-lived wheals (lasting <24 hours) and possible angioedema, requiring a comprehensive physical examination to identify underlying causes (4,5,6). The common clinical presentation involves red, swelling, and itchy plaques (1).

The therapeutic approach for acute urticaria involves first identifying and eliminating the underlying triggers, such as discontinuing medications or avoiding allergenic foods. Antihistamines, either over-the-counter or prescription, are typically the first line of treatment to relieve itching and reduce hives. Adding H2 antagonists like ranitidine may provide additional relief in some cases. For severe episodes, short courses of oral corticosteroids can be considered. Patients are advised to avoid known triggers and take preventive measures against physical urticaria triggers. Topical treatments like cool compresses and calamine lotion can help soothe the skin. While acute urticaria often resolves on its own, persistent or severe cases may require referral to specialists for further evaluation and care.

## MATERIALS AND METHODS:

**Ethical clearance:** This prospective study was approved by the Institutional Human Ethics Committee, Number: IHEC/876/2022 and permitted by Member Secretary, Institutional Human Ethics Committee, Government Cuddalore Medical College & Hospital (RMMCH), Annamalai University. The registration number of IEC is EC/NEW/INST/2020/1249.

**Study site:** Department of Dermatology, Venereology & Leprosy, Government Cuddalore Medical College Hospital (RMMCH), 1200 bedded multi-specialty tertiary care teaching

hospital, Annamalai University, Chidambaram, Tamil Nadu. **Study type:** A prospective cross-sectional observational study. **Study period:** 6 Months (Nov 2021- April 2022). **Study tools:** Data collection form. **Sources of data:** The data required for the study was collected from the case sheets (In-patients & Out patients) and personal interaction with patients and caretakers.

### **Study recruitment:**

The study method involves the enrolment of patients based on inclusion and exclusion criteria. **Inclusion criteria:** Patients who were treated either as inpatients or outpatients in RMMCH for acute urticaria. Patients who were newly or already diagnosed with acute urticaria. Patients irrespective of age and gender. Patients who were willing to participate in the study **Exclusion Criteria:** Patient who are not willing to participate in the study. Cases with insufficient data. Patient with other skin disease.

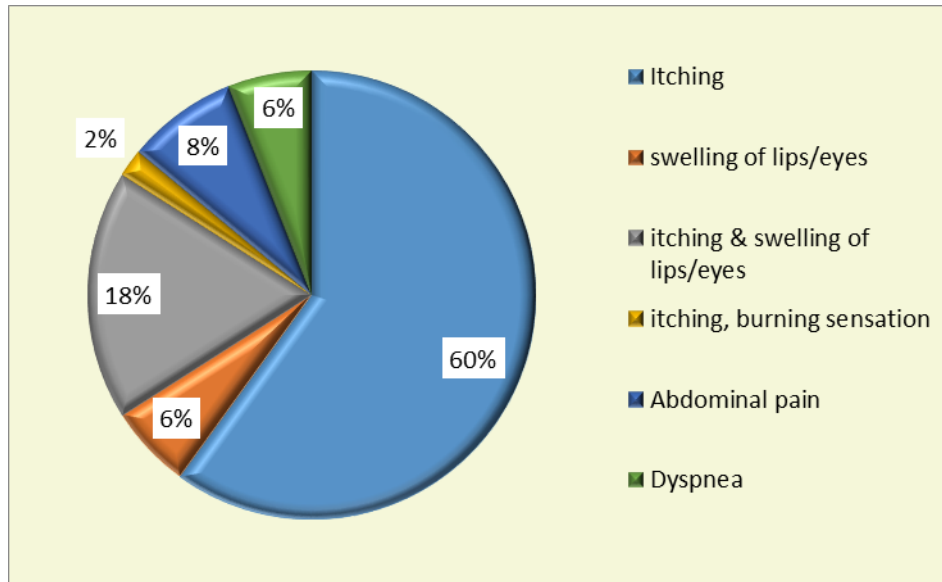
### **Study procedure:**

The study period was conducted for 6 months (Nov 2021- April 2022). Selection of subjects based on inclusion and exclusion criteria. Prior to starting the study, informed consent form was obtained from patients. Data collection form is designed to collect all the details like Demographic details, medical history, examination (local examination, cutaneous examination). The present study was carried out among the patients visiting outpatient and inpatient departments under the department of Dermatology, Venereology & Leprosy, Government Cuddalore Medical College & Hospital (RMMCH). The net result of treatment was recorded and tabulated. The results were interpreted based on the data collected during the treatment course. The conclusion drawn from the study. Submission of report. Collected data will be stored in the department library for future reference in the form of thesis book. **Data analysis:** The data gathered were recorded using Microsoft Excel and analyzed using relevant statistical tools to provide significant results.

### **RESULTS AND DISCUSSION:**

A total of 50 patients were enrolled in the study. It was found that acute urticaria affects all ages and both genders. The demographics data shows that among these patients, female patients 36 (72%) were found to be more affected than male patients 14 (28%). The age distribution of the study shows that the majority of patients were in 21-35 years age group(32%) followed by 20% and 18% of patients was belonged to age group between 36-50

years and 11-20 years, 6% patients were in less than 10 years of age, 14% of elderly age group patients were developed urticaria. Among the study population, 14 patients experienced with spontaneous disappearance of lesions, and there was no spontaneous disappearance of lesions in 36 patients. Lesions resolved spontaneously within 3 hours without leaving a trace. The most common clinical presentation was itching (Figure 1).



**FIGURE 1: SYMPTOMATOLOGY OF ACUTE URTICARIA**

Among all patients, the majority 60% of cases had acute urticaria of unknown causes and etiology was identified in 40%. With regard of the known etiology, food allergy was a relevant accompanying condition in 8%, while infections (fever, cold & cough) accounted for 16% of cases. 4% and 2% of cases were associated with drugs and unknown bites, 10% of cases were associated with dental caries (table 1). Sometimes etiology was identified by baseline investigations and the patient's family and personal history of allergy, duration of symptoms, and presence of associated symptoms and objective signs of current episodes. In some cases, clinical laboratory and instrumental investigations were also included. The most commonly prescribed medications for drug-related etiology were Bilastine (n=2) and calamine lotion (n=2). Calamine lotion (n=4), Hydroxyzine (n=3), Bilastine (n=2) and Inj. Dexamethasone (n=2) was the most common medication prescribed for the food-related etiology compared to other medications. Most of the infectious-related etiologies were treated with calamine lotion (n=4), cetirizine (n=3), hydroxyzine (n=2), Inj. Taxim (n=2), Inj. Hydrocortisone (n=2) and Inj. Ranitidine (n=2). Dental caries were commonly treated with calamine lotion (n=7), Bilastine (n=6) and Cetrizine (n=6). Among 50 patients, an unknown

bite was seen in only one patient and was treated with S. Hydroxyzine, T. Prednisolone, Inj. Hydrocortisone, Inj. Ranitidine and T. Junior Lanzol. The most commonly prescribed medications for unknown causes were calamine lotion (n=28), cetirizine (n=16), Bilastine (n=15), albendazole (n=9) and hydroxyzine (n=7).

**TABLE 1: ETIOLOGICAL FACTORS IN URTICARIA**

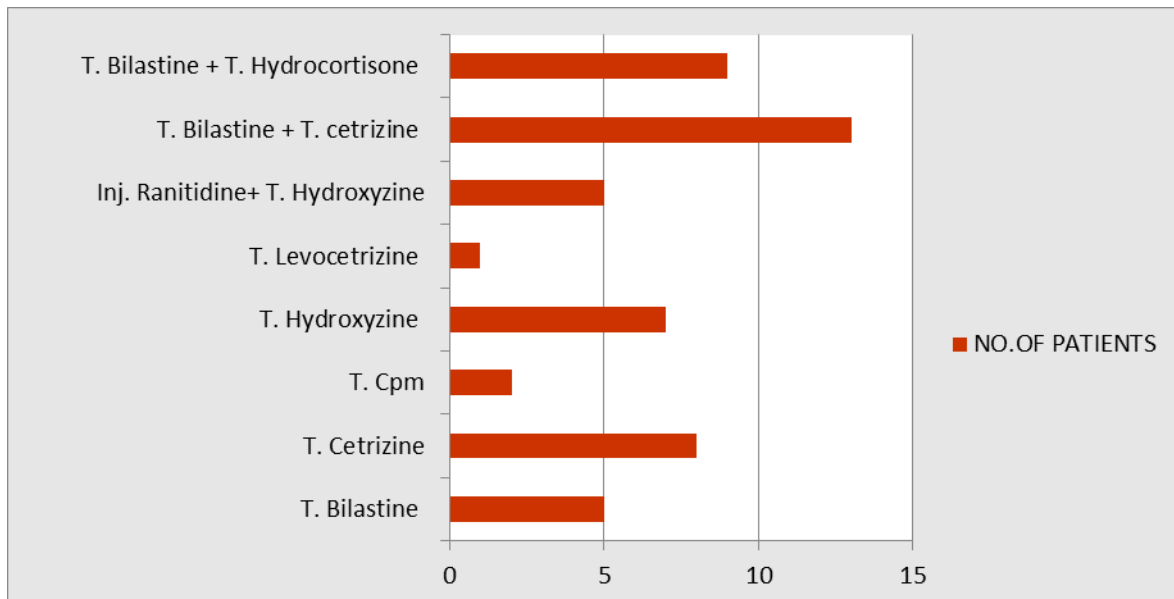
S.No	Causes	No. Of Patients	Percentage
1	Drug	2	4%
2	Food	4	8%
3	Infection ( fever, cold & cough )	8	16%
4	Dental caries	5	10%
5	Unknown bite	1	2%
6	unknown causes	30	60%
	TOTAL	50	100%

### **Therapeutic approach**

The main goal of the treatment of patients with acute urticaria is the complete remission and prevention of urticarial lesions and prevention of recurrence. The most commonly used medications were antihistamines, corticosteroids and antibiotics.

### **ANTI-HISTAMINES**

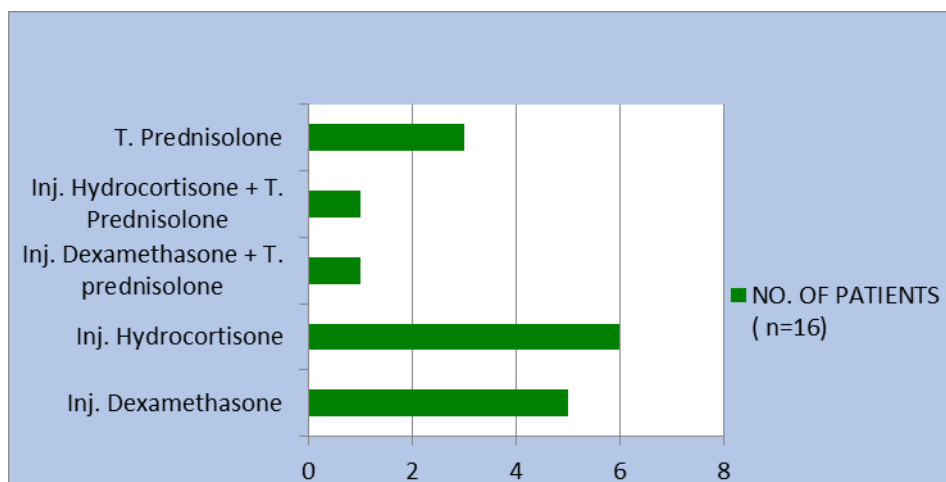
Antihistamines bind to histamine receptors and prevent the formation of pruritus and urticarial plaques. From the 50 prescriptions, the antihistamines were prescribed either as a monotherapy or in combination. Most commonly prescribed antihistamine was bilastine (n=5) followed by cetirizine (n=8), hydroxyzine (n=4), levocetirizine (n=1), CPM (n=2), S. hydroxyzine (n=3), and in combination bilastine with hydrocortisone (n=9), bilastine with cetirizine (n=13), and hydroxyzine with ranitidine (n=5).



**FIGURE 2: ANTIHISTAMINE PRESCRIBED**

**CORTICOSTEROIDS**

Glucocorticoids do not inhibit mast cell degranulation, but they probably act by suppressing various inflammatory mechanisms. Severe urticaria patients were managed with addition of corticosteroids. Hydrocortisone was the most prescribed corticosteroid injection (n=6), followed by Inj. dexamethasone (n=5), T. prednisolone (n=3). Along with Inj. Dexamethasone + T. Prednisolone for 1 patient and Inj. Hydrocortisone + T. Prednisolone for 1 patient.



**FIGURE 3: CORTICOSTEROIDS PRESCRIBED**

## **Outcome**

Urticaria management is not universal and varies with the patient and their underlying disease. Comprehensive diagnostic work up and etiology-based therapeutic approach may cure the disease and prevent recurrence. At the same time all the patients with urticaria therapy must be warned about desired side effects of antihistamines and corticosteroids. Self-medication and taking medication without consulting the physician (OTC) can complicate the disease outcome. Anti-cholinergic, corticosteroid related side effects can affect the cognitive function, steroid abuse-related complication. Hence, precise diagnostic and therapeutic approach will benefit the most distressing urticarial illness with or without the occurrence of angioedema.

## **CONCLUSION**

A total of 50 patients were enrolled in the study based on inclusion and exclusion criteria. The underlying cause of acute urticaria could not be identified in more than half of the cases (60%). Short duration and self-limited course of single attack of acute urticaria, we identified infections etiology in majority of the cases but the exact organism causing this couldn't be identified because of the possibility of viral infection as well as unknown mechanism. Our study states that antihistamines are the first choice in acute urticaria. Bilastine was commonly prescribed antihistamine but combined therapy with cetirizine was also given. Most commonly corticosteroids (dexamethasone, hydrocortisone and prednisolone) were the choice of drug in very severe case those who did not respond to conventional histamines. We have followed up on all the treated cases for 1 month but there was no recurrence. We conclude that combined approach with the appropriate course of antihistamines, corticosteroids and antibiotics in acute urticaria can be an ideal approach with varying severity.

## **ACKNOWLEDGEMENT:**

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## AUTHOR CONTRIBUTION:

Conceptualization and methodology including data collection: Shaly Praveetha K, Elayaraja E, Gopalakrishnan G, Kaviarasan P K; Writing - original draft preparation and literature search: Shaly Praveetha K, Elayaraja E; Writing -Review and Supervision: Gopalakrishnan G, Kaviarasan P K. The final manuscript has been read and approved by all the authors.

## CONFLICT OF INTEREST:





The authors affirm that the publishing of this paper is free of conflict of interest.

## REFERENCES

1. Aslan Kayıran, Melek (2018). *Diagnosis and Treatment of Urticaria in Primary Care*. Northern Clinics of Istanbul, 2019;6(1):93-99
2. Prasad PS, *Urticaria*. Indian J Dermatol venerol leprol, 2001;67:11-20
3. Paul Schaefer, MD, PhD, *Urticaria: Evaluation and Treatment*, University of Toledo college of medicine, Toledo, ohio
4. Dr. Amanda Oakley, *Acute urticaria*, Dermnet NZ January 2015. <https://dermnetnz.org/topics/acute-urticaria>
5. Neha Pathak, MD, March 22, 2021, *Hives and Your Skin*, WebMD
6. Paul Schaefer, *Acute and Chronic Urticaria: Evaluation and Treatment*. University of Toledo College of Medicine and Life Sciences, Toledo, Ohio 2017 Jun 1;95(11):717-724.
7. Mehdi adeli, MD, *Urticaria and Angioedema*. Edition: 1st Publisher: Hamad Medical Corporation, February 2016.
8. BeateM. Czarnetzki M.D, *The History of Urticaria*. International journal of dermatology, January 1989;28(1);52-57
9. Professor Lennart Juhlin, *The History of Urticaria and Angioedema*. Department of Dermatology, University Hospital, Uppsala, Sweden
10. Zuberbier, Torsten; Henz, Beate M; Greaves, Malcom w; Juhlin, Lennart; Kobza-Black, Anne; Maurer, dieter; Stingl, Georg, *Definition, Classification, and Routine Diagnosis of Urticaria: A Consensus Report*. Journal of Investigative Dermatology Symposium Proceeding, 6(2), 123-127
11. Zuberbier T. *Classification of urticaria*. Indian J Dermatol 2013;58(3):208-210
12. Criado, Paulo Ricardo; Criado, Roberta Fachini Jardim; Maruta, Celina W.; Martins, Jose Eduardo Costa; Rivitti, Evandro A. (2005). *Urticária*. Anais Brasileiros de Dermatologia, 80(6), 613–630.
13. Amin Kanani; Robert Schellenberg; Richard Warrington (2011). *Urticaria and angioedema*. Allergy Asthma and Clinical Immunology, 7(1), 0–0.
14. T. Zuberbier, *Urticaria*. Department of Dermatology and Allergy, University Hospital Charité Humboldt University December; 2003;58(12): 1224-1234
15. Seung Jin Lee, Eun Kyo Ha, Hye Mi Jee, Kyung Suk Lee, Seung Won Lee, Mi Ae Kim, Dong Hyun Kim, Young-Ho Jung, Youn Ho Sheen, Myong Soon Sung, Man Yong Han, *Prevalence and Risk Factors of Urticaria. With a Focus on Chronic Urticaria in Children*, 2017 May; 9(3): 212–219.
16. Henry K Wong, Micheal A Kaliner, *Acute Urticaria*, Allergy & Immunology, Mar 21, 2018
17. Evangelo Frigas, Migual A Park, *Acute urticaria and angioedema: diagnostic and treatment considerations*, American Journal of Clinical Dermatology 2009, 10(4), 239-50
18. F Cardinale, F Mangini, M Berardi, M Sterpeta Loffredo, I Chinellato, A Dellino, F Cristofori, F Di Domenico, M F Mastrototaro, A Cappiello, T Centoducati, F Carella, L Armenio, *Intolerance to food additives: an update*, Minerva Pediatrica 2008, 60 (6): 1401-9
19. Javed Sheikh, *Advances in the treatment of chronic urticaria*, Immunology and Allergy Clinics of North America 2004, 24 (2): 317-34, vii-viii



20. Bettina Wedi, Ulrike Raap, Dorothea Wiczorek, Alexander Kapp, *Urticaria and infections*. Allergy, Asthma, and Clinical Immunology 2009 December 1, 5 (1): 10
21. A Leznoff, R G Josse, J Denburg, J Dolovich, *Association of chronic urticaria and angioedema with thyroid autoimmunity*. Archives of Dermatology 1983, 119 (8): 636-40
22. Nina C Botto, Erin M Warshaw, *Solar urticaria*. Journal of the American Academy of Dermatology 2008, 59 (6): 909-20; quiz 921-2
23. Julia Benedetti , *Urticaria(Hives; Wheals)*, Harvard Medical School, Dec 2021
24. Grattan, C. (2012). *The urticaria: pathophysiology and management*. Clinical Medicine, 12(2), 164–167.
25. Ana Hennino; Frédéric Bérard; Isabelle Guillot; Nathalie Saad; Auore Rozières; Jean-François Nicolas (2006). *Pathophysiology of urticaria*. , 30(1), 3–11.
26. Y S Baek, J Jeon, J H Kim, C H Oh, *Severity of acute and chronic urticaria correlates with D-dimer level, but not C-reactive protein or total IgE*, Clinical and Experimental Dermatology 2014, 39 (7): 795-800

	<p><b>SHALY PRAVEETHA. K</b> – Corresponding Author Doctor of Pharmacy Student, Department of Pharmacy, Annamalai University, Annamalai Nagar – 608002. Tamilnadu, India.</p>
	<p><b>ELAYARAJA. E</b> Doctor of Pharmacy Student, Department of Pharmacy, Annamalai University, Annamalai Nagar – 608002. Tamilnadu, India.</p>
	<p><b>Dr. G. GOPALAKRISHNAN, M.Pharm., Ph.D.,</b> Assistant Professor, Department of Pharmacy, Annamalai University, Annamalai Nagar – 608002. Tamilnadu, India.</p>
	<p><b>Dr. P. K. KAVIARASAN, M.D</b> Professor &amp; Head, Department of Dermatology, venereology &amp; leprosy , Government Cuddalore Medical College &amp; Hospital (RMMCH), Annamalai Nagar.</p>