

# Chronic Urticaria in Children: An Update about Etiology

## Abstract

Urticaria, one of the most common dermatological disorders across the globe is characterized by itchy wheals with or without angioedema. The incidence of Urticaria in children is about 0.1% to 6%. Chronic Urticaria is defined as a daily occurrence of spontaneous wheals, angioedema, or both for >6 weeks. The etiology of chronic Urticaria is multifactorial in children and it can be explored in 20% to 50% children. In most of children the cause of chronic Urticaria are either idiopathic or autoimmune.

**Keywords:** Chronic Urticaria; Etiology; Children

## Mini Review

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## Introduction

Chronic urticaria (CU) in children is a complex disease and the etiologies of chronic urticaria in children are somewhat different from adult [1]. The prevalence of CU lasting >6 weeks is uncertain and varies among studies. The prevalence of chronic Urticaria in Spanish children is 18% [2]. In Thailand 13% children were reported as having chronic urticaria [3]. In another report, urticaria only was seen in 78.4%, angioedema 6.6% and angioedema associated with urticaria observed in 15% of children with chronic urticaria. The chronic Urticaria is common in children of 6 to 11 year's age [4]. There is no available information on the prevalence or differences in disease presentation according to age. There is no sex predisposition were found in children with chronic urticaria in recent studies unlike adults where CU is more common in female as compared to male [5]. There are many etiological factors have been associated with chronic Urticaria in children but in most of cases are idiopathic. Infectious causes are more common in children than adult [6]. This review is exploring the etiological agents of chronic Urticaria in children.

## Definition & Classification of Chronic Urticaria

Chronic urticaria is defined as the occurrence of spontaneous wheals, angioedema or both for more than six weeks. Usually urticaria is classified on the basis of duration of presence of characteristic features and triggering agents. The 2014 revised European Academy of Allergy and Clinical Immunology (EAACI) guideline, classified the chronic urticaria into the two subgroups: chronic spontaneous urticaria and chronic inducible urticaria [7]. Chronic spontaneous urticaria (CSU) is defined as the recurrent development of transient wheals (hives), angioedema (AE), or both for >6 weeks due to known or unknown causes. Previously this was known as chronic idiopathic urticaria. Infections, food intolerance, drugs and autoimmunity have been considered as cause of chronic spontaneous urticaria [7]. Chronic inducible urticaria, earlier known as physical urticaria is characterized by presence of characteristic features of urticaria after triggering of specific stimulus. Chronic inducible urticaria often included dermatographism, aquagenic, cholinergic, delayed pressure, solar,

vibration, cold and heat urticaria as depicted in Table (1) [7].

**Table 1:** Clinical classification of chronic urticaria.

Types of Chronic Urticaria	Trigger Factor	
<b>Chronic spontaneous urticaria (CSU):</b> Spontaneous appearance of wheals, angioedema, or both ≥6 weeks due to known or unknown causes	Stress, infection, drugs	
<b>Chronic inducible urticaria (CIU):</b> Triggered by specific Stimulus	Sub type of CIU	
	Symptomatic dermatographism	Minor trauma
	Cold urticaria	Swimming in cold water, cold wind
	Delayed pressure urticaria	Sitting, lying, tight clothing
	Solar urticaria	Sunshine
	Heat urticaria	Hot bath/shower
	Vibratory urticaria	Use of vibrating tools
	Contact urticaria	Contact with offending agent
	Cholinergic urticaria	Exercise, emotion
Aquatic urticaria	Contact with hot or cold water	

## Etiology of Childhood Chronic Urticaria

The etiology of childhood chronic urticaria is multifactorial and most common form of chronic urticaria is spontaneous urticaria. The etiologies of CU in children could be found out in 20% to 50% cases successfully [5].

The following etiological factors are associated with chronic urticaria in children:

- 1) Chronic spontaneous urticaria: Most of studies have reported the wide variability of percentage of unknown cause of chronic urticaria in children. Volonakis et al [4]. Had not found out the cause of chronic urticaria in 75% children. In another study the most common cause of chronic urticaria was idiopathic [8].

The following pathological condition included in causes of CSU.

- I. Infections
  - II. Food allergy
  - III. Autoimmunity
  - IV. Drugs
- 2) Chronic inducible urticaria/physical urticaria: Almost identified causes are inducible urticaria, which cholinergic, symptomatic dermographism, cold, and pressure urticaria are most common forms.

## Infections

Acute infections have also significant contributions in chronic urticaria. Recurrent respiratory and urinary infections have been associated with chronic urticaria [9]. Up to some extent Chlamydia and H. helicobacter pylori are also play role in children with chronic urticaria observed that the infections in children are third most common etiology of chronic urticaria [10]. Infection has been contributed about 7% to 13% as etiological factor of chronic urticaria in children [11].

## Food Allergy

The role of food allergy in children with chronic urticaria is established up to some extent. Although, the correlation between food allergy and acute urticaria is well known. Food additive and preservatives have role in severity of chronic urticaria. Volonakis et al were reported that 28% children have food allergy as cause of chronic urticaria [4]. Several studies have demonstrated that about 10% to 12% of children with chronic urticaria have food allergy which is based on classical history, positive IgE test and skin prick test in some studies [8].

## Autoimmunity

Autoimmunity can play role in chronic urticaria in children. An autologous serum skin test is usually performed to evaluate the etiology of chronic urticaria. Measurement of IgG auto antibodies can generally be done. However no correlation between IgG and ASST has been reported. The autologous serum skin test is positive in 35% to 50% children with chronic urticaria [12]. Many

autoimmune disorders including rheumatoid arthritis, systemic lupus erythematosus, diabetes mellitus, inflammatory bowel disease, thyroid disease and celiac disease have been associated with chronic urticaria in children [12]. Chronic urticaria was observed in 7% to 8% children with autoimmune thyroiditis [13]. In another study, 4.3% of children with chronic urticaria had positive anti-thyroid antibody [14]. If symptoms other than urticaria present, further evaluation must be done.

## Drugs

Drugs usually cause acute urticaria rather than chronic urticaria in children. Nonsteroidal anti-inflammatory drugs (NSAIDs), penicillin and sulfonamide may cause chronic urticaria. One recent study found the NSAIDs and chronic urticaria in children and reported that 10% to 24% children with chronic urticaria have aspirin hypersensitivity [15].

## Chronic Inducible Urticaria/Physical Urticaria

Physical urticaria often comprised dermographism, delayed pressure, solar, vibration and exercise and aquatic urticaria. Khakoo et al. had observed that among all type of physical urticaria, 38% were dermographism, 19% aquagenic, 77% cholinergic, 17% combined them, 9% pressure, 9% heat, 2% hyperthermic and 4% idiopathic [16].

## Cholinergic Urticaria

Cholinergic urticaria is caused by central hypothermia after hot water application, sweating. It is characterized by central small edema with large peripheral erythema with itching. Omalizumab can be used in treatment of chronic urticaria if conventional therapy is failed [17].

## Conclusion

Chronic urticaria in children has diverse etiology. Most of studies have reported that idiopathic urticaria is most common form of chronic urticaria in children. Apart from it, food allergy, autoimmunity, infections and drugs have crucial role in etiology of chronic urticaria in children.

## Contributions

BSS got the idea about this review and help in making final draft, HMM write the manuscript, PD & PS search the recent articles and collect the relevant information. RC help in final proof reading. HMM will act as guarantor.

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