Urticaria and Angioedema in Siriraj Medical Students

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Abstract

The present study aimed to investigate the current prevalence of urticaria with or without angioedema among Siriraj medical students, the possible causative agent(s), the association between a history of atopy, behavior of patients seeking treatment and natural course. A cross-sectional study was conducted among 428 Siriraj medical students, Mahidol University in October, 2001. The study showed the prevalence of urticaria and angioedema to be 51.6 per cent and 19.6 per cent respectively, coexisting in 13.6 per cent but urticaria alone occurred in 38 per cent and angioedema alone in 6 per cent. There was an equal sex distribution. Acute urticaria (93.2%) was more prevalent than chronic urticaria (5.4%), and the acute intermittent type was the most common. Heat, inhalants, and contactants were more often suspected causes than food or drug allergy identified in both forms. More than half the urticaria subjects treated themselves by buying over-the-counter drugs (66%) and the remainder waited for spontaneous remission (49%) with a low percentage seeking medical advice (24% from a general practitioner, 14% from a dermatologist). An atopic history was not a major underlying factor for urticaria. Most patients with acute urticaria were free of symptoms after 3 weeks. Cases with chronic urticaria who were completely healed had a mean disease duration of 14.2 weeks. However, cases with chronic urticaria who had never had a long hive free period since the onset of the disease until the time of the study had a mean disease duration of 6 years. These findings may be useful to help educate affected persons and improve public awareness in order to prevent and manage this disease.

Key word : Urticaria, Angioedema, Medical Students

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Urticaria with or without angioedema has been reported to affect 15-20 per cent of the population in Western countries[1,2]. It occurs in all age groups with the highest incidence in young adults. Warin and Champion[3] reported that 49.5 per cent of their patients had angioedema and urticaria, 40 per cent had urticaria alone, and 11 per cent had angioedema alone. The etiology of urticaria could be identified in between 10 to 100 per cent depending on criteria used for establishing the etiology and to the population studied[4-6].

Only one paper on the prevalence of urticaria in a Thai population has been published. A survey in 1,256 Mahidol University students revealed that 58.2 per cent of them had a history of urticaria[7] and almost half of them had had urticaria twice.

Two studies concerning the etiology of urticaria in a Thai population have been published. A study of urticaria in Thai children by Tuchinda M et al in 1986 revealed that causes identified or suspected in 32.4 per cent of cases with the most frequently encountered cause being drugs and the second being food[8]. In another Thai population study in 500 patients with urticaria at Ramathibodi Hospital, Mahidol University in 1988, the cause of acute and chronic urticaria was identified in 12.3 per cent and 12.1 per cent of patients respectively. The possible causes were similar in both types of urticaria, i.e. physical urticaria (the most frequent cause), food (second) followed by infections and drugs. The aggravating factors for urticaria were food, drugs, house dust, insects, animal dander, perfume, soap, physical agents, exercise and emotional stress[9].

The present study aimed to investigate the current prevalence, causative agents and aggravating factors, and to evaluate the natural course of urticaria among Siriraj medical students. Findings concerning causative agents and aggravating factors could be applied for prevention and management. Finally, the findings of the present study will provide fundamental information on which further studies in the Thai population may be based.

PATIENTS AND METHOD

A cross sectional survey was conducted in 428 Siriraj medical students in October 2001, following verbal agreement. A questionnaire was completed after a short lecture using slides explaining the nature of urticaria and angioedema.

Data collection

Data on demographic data, geographical area, atopic history, family history, causative agents, aggravating factors, natural course and treatment of urticaria and/or angioedema were recorded, and entered twice into a database. The data were then verified, the range checked, and checked against original records.

Data analyses

Data were analysed using SPSS version 10.0 for Windows using a 95 per cent confidence level. Demographic data were analyzed using descriptive methods, the prevalence of urticaria and/or angioedema was calculated according to sex, atopic history, family history and natural course. The cause(s) and aggravating factors of urticaria and/or angioedema was identified if possible. The conditions were divided into acute and chronic form. The natural course and treatments were evaluated.

RESULTS

Of the 428 medical students, 223 were male (52.1%). Their ages ranged from 17-30 years with a mean of 19.6 years. 98 per cent of the students gave corrected pretest answers about the disease. Urticaria occurred in 221 persons (51.6%). Among these, urticaria was present without angioedema in 38 per cent and urticaria with angioedema in 13.6 per cent. Eighty-four students (19.6%) had had angioedema, of whom only 6 per cent had had angioedema alone.

Table 1 shows urticaria and angioedema equally affects both sexes. In the urticaria group, 28 per cent had had a single attack, whereas 61.5 per cent had had an attack more than once. Fifty-three per cent had a positive family history of urticaria which was relatively more common than in unaffected individuals (26.6%). However, a positive atopic history in those with urticaria was not significantly different from that found in unaffected individuals (75.1% compared to 70.5%, $p > 0.05$). Allergic rhinitis and allergic conjuctivitis were found more often than atopic dermatitis and asthma in affected persons (56.6%, 51.1%, 28.1% and 14.5% respectively), compared with unaffected persons (58.5%, 47.2%, 12.1% and 11.1% respectively). Thirty per cent had a history of food allergy such as seafood. Twenty-four per cent also had a positive history of allergy to a drug (e.g. antibiotics). Five per cent of the 221 patients with urticaria also had an underlying disease such as peptic

ulcer. In the angioedema group, thirty-three per cent had had a single attack, whereas 48.9 per cent had had more than one. Eight per cent had a positive family history of angioedema. A history of allergic rhinitis and allergic conjunctivitis were commonly reported as in those with urticaria. Thirty-seven per cent of the angioedema group had a history of food allergy, whereas 25 per cent had a positive history of drug allergy. 5 per cent of the angioedema group had underlying diseases which was similar to the group with urticaria.

Table 2 shows that 36.2 per cent of the cases with urticaria had associated systemic symptoms. Those were headache (13.6%), respiratory and gastrointestinal symptoms (5% each), and joint symptoms (3.6%). Other nonspecific symptoms were reported in 9 per cent such as fever and malaise. Suspected causes and/or aggravating factors for urticaria are shown in Table 3. Table 4 divides the groups into acute and chronic urticaria and shows demographic data and other factors in relation to these. Neither sex was affected differently. Fifty-three per cent of those with acute urticaria had a positive family history of urticaria, whereas 42 per cent had a positive family history in the chronic type. In the present study chronic urticaria was more likely to coexist with angioedema than acute urticaria (33.3% compared with 25.7%). A positive history of allergic rhinitis and allergic conjunctivitis were commonly found in both types. Furthermore, the acute type was associated with more systemic symptoms than the chronic. However, the number of cases with chronic urticaria was too small for a valid comparison. Treatment measures used are shown in Table 5. Table 6 shows the natural course of urticaria, 93.2 per cent of cases had acute urticaria of which the most common form was the acute intermittent form (55.2%), whereas the less common form was chronic urticaria (5.4%). The duration of acute urticaria ranged from 1 to 21 days (mean ± SE = 3.1 ± 0.4). Although there were only a few cases of chronic urticaria, the duration of disease ranged from 7 to 21.4 weeks (mean ± SE = 14.2 ± 7.2). Cases who had never had a long hive free period since the onset of the disease had a course ranging from 1 to 9 years (mean ± SE = 6 ± 1).

DISCUSSION

The present study showed the prevalence of urticaria and angioedema was 51.6 per cent and 19.6 per cent respectively. Among those with urticaria,

Table 1. Demographic data in urticaria and angioedema groups.

Characteristics	Urticaria no (n = 221)	%	Angioedema no (n = 84)	%
Sex				
Male	105	47.5	42	50
Female	116	52.5	42	50
Episode frequency				
1 time	62	28.1	28	33.3
2-5 times	94	42.5	32	38.1
> 5 times	21	10	4	4.8
Multiple*	20	9	5	6
Undetermined	23	10.4	15	17.8
Family history of urticaria and/or angioedema				
Positive	117	52.9	7	8.3
Negative	28	12.7	51	60.7
Not known	74	33.5	24	28.6
Undetermined	2	0.9	2	2.4
Personal atopic history : total	166	75.1	75	89.3
Allergic rhinitis	125	56.6	55	65.5
Allergic conjunctivitis	113	51.1	55	65.5
Asthma	32	14.5	15	17.9
Atopic dermatitis	62	28.1	27	32.1
Positive history of food allergy	67	30.3	31	36.9
Positve history of drug allergy	53	24	21	25
Positve history of underlying disease	12	5.4	4	4.8

* Multiple : uncertain number of attacks but more than one.

Table 2. Reported systemic symptoms associated with urticaria (n = 221) in Siriraj medical students.

Symptoms	No.	%
Respiratory	11	5
Gastrointestinal	11	5
Joint	8	3.6
Headache	30	13.6
Others	20	9
Fever	10	
Malaise	2	
Stress	2	
Vomiting	2	
Conjunctivitis	1	
Stuffed nose	1	
Undetermined	2	1
Total	80	36.2

Table 3. Possible causes and aggravating factors suspected to induce urticaria.

Causes and/or aggrevating factors*	Number	%
Heat	121	54.8
Inhalants	113	51.1
Contactants	109	49.3
Stroke	96	43.4
Pressure**	94	42.5
Food	76	34.4
Pets	66	29.9
Sunlight	58	26.2
Soap	58	26.2
Stress	49	22.2
Drugs	49	22.2
Perfumes	45	20.4
Deep pressure***	28	12.7
Cold	25	11.3
Menstruation	22	10
Others	17	7.7
Undetermined	2	1

* A person might have more than one causative and/or aggrevating factors.
** Pressure : such as local pressure from fitted underwear
*** Deep pressure : such as prolonged sitting.

coexisting urticaria and angioedema were detected in 13.5 per cent which was less common than urticaria alone (38%) in contrast to the study of Warin and Champion[3]. Although, there have been many studies concerning urticaria and angioedema, most of them have been performed in Western countries and might not be the same as the prevalence in Thai people. Over the past twenty years, only three Thai population studies[7-9] have been performed which might not reflect the current prevalence. So the authors performed a survey in Siriraj medical students who had basic medical knowledge in order to get reliable data.

A review of previous epidemiological studies and factors associated with urticaria is shown in Table 7. Compared with previous reports, the prevalence in the present study was not significantly different from the 58.2 per cent found by Tuchinda[7] in 1978, which had a similar population and was higher than that of Sheldon[2] who studied Michigan University students. In the present study, acute urticaria (93.2%) affected a higher percentage than chronic (5.4%) when compared with a previous study of young people[10]. The acute intermittent type (52.5%) was the most commonly identified type.

With respect to other allergic diseases; allergic rhinitis and allergic conjunctivitis were found more commonly than atopic dermatitis and asthma in association with urticaria and/or angioedema. However, a personal atopic history was not found to be a major indicating factor for urticaria and/or angioedema. A family history of urticaria (52.9%) in the group with urticaria was found to be more relevant than a family history of angioedema (8.3%) in the group with angioedema.

Common causes and/or aggravating factors of urticaria found in this study were heat, inhalants (airborne), and contactants, in contrast to the leading causes mentioned in former Thai population studies (7-9). Those were food, drugs and physical urticaria (dermographism) which might imply that the environment and pollution might have a great effect than in the past. It should be noted that true heat-induced urticaria is cholenergic urticaria which has the clinical features of punctate 10- to 15-mm central wheals that appear 5 to 15 minutes after a trigger event and last 20 to 30 minutes[15]. It is different from ordinary urticaria in which heat may make the patients' symptoms worse. Those who answered the questionnaires might not have been able to differentiate between these two conditions.

It is well recognized that allergic reactions to drugs and food are prominent in the etiology of acute urticaria[2,7]. One-third of the cases ascribed to food were due to seafood, beverages, bread, fresh waterfish, shells, and food preservatives etc. One-fourth of the presented cases assumed that their urti-

Table 4. Demographic data of the groups with acute and chronic urticaria.

Demographic data	Acute no (n = 206)	%	Chronic no (n = 12)	%	Total (%) (n = 218)
Sex					
Male	99	48.1	6	50	48
Positive family history of urticaria	110	53.4	5	41.7	53
Coexisting angioedema	53	25.7	4	33.3	26
Atopic history					
Allergic rhinitis	113	55.8	6	50	55
Allergic conjunctivitis	103	50	7	58.3	5
Asthma	30	14.6	0	0	15
Atopic dermatitis	60	29.1	2	16.7	28
Systemic involvement					
Respiratory	11	5.3	0	0	5
Gastrointestinal	11	5.3	0	0	5
Joint	8	3.9	0	0	4
Headache	29	14.1	1	1.2	14
Others	20	10	2	2.4	9
Treatment*					
Leave (spontaneous remission)	99	48.5	7	58.3	49
Buy over-the-counter drugs	140	68	3	33.3	66
By general practitioner	52	25.5	1	8.3	24
By dermatologist	28	13.6	2	16.7	14
Others	5	2.4	1	8.3	3

* A person might have more than one attack of urticaria and received different modalities of treatment

Table 5. Reported management of urticaria-affected persons in the study group.

Measures	Number	%
Wait for spontaneous remission	116	52.5
Buy over-the-counter drugs	7	65.2
Oral antihistamine	49	
Oral corticosteroids	9	
Topical calamine lotion	13	
Unknown topical drugs	8	
Unknown oral drugs	3	
Medical advice		
General practitioner	7	24
Dermatologist	31	14
Other treatments	7	3.1

* A person might have more than one episode of urticaria and had different modalities of treatment.

Table 6. Natural course of urticaria.

Course	Number	%
Completely healed	84	38
Acute urticaria (affected once)	122	55.2
Acute intermittent urticaria	4	1.8
Chronic urticaria		
Continuing : never free since onset	8	3.6
Undetermined	3	1.4

Acute urticaria = wheals appear for a few days up to 6 weeks
Acute intermittent urticaria = short episodes of wheals (not longer than 6 weeks) with long intervals (> 6 weeks to years) in between
Chronic urticaria = new wheals appear almost every day for longer than 6 weeks up to several years

caria was caused by drugs especially antibiotics (penicillin, sulfonamides, tetracycline, cephalosporins), whereas aspirin and NSAIDs were less common.

When considering acute and chronic urticaria, possible causes or aggravating factors were not significantly different ; heat, inhalants and contactants were predominant. Foods and physical urticaria were more likely to aggrevate chronic cases.

The final part of the present study concerned the treatment. More than half of the cases had taken over-the-counter drugs or waited for spontaneous remission; few cases received medical advice. This implies that education and the media have helped to increase people's knowledge about the disease.

Most of the presented cases with acute urticaria were free of symptoms after 3 weeks and those

Table 7. Literature review of urticaria concerning prevalence and relevant factors.

Authors	Year	Study population	Number of cases	Prevalence (%)	Other data
Swinny B[1]	1941	Atopic, nonatopic	1,000	23.6	• Asthma associated with urticaria ; 2.5 times more than nonatopic group
Sheldon JM[2]	1954	Michigan University students	1,424	15.7	• Most common 4 causes ; drugs, foods, infections, psychic factor
WinkelmanRK[4]	1957	Mayo Clinic patients	N/A*	10-25	• Chronic form ; 50%
Hellgren L[5]	1964	Dermatological practice	1,207	1-2	N/A*
Green GR[10]	1965	Case-recorded patients	824	N/A*	• 71.4% ; acute urticaria, mostly caused by allergy
					• 28.6% ; chronic, mostly undetermined etiology
Champion RH[11]	1969	Retrospective data of patients by questionnaires	554	N/A*	• Peak age 20-30 years
					• Atopic Hx ; not significant
					• 79% ; unknown etiology
Hellgren L[6]	1972	General population (Sweden)	36,475	0.15-0.21	• 33% ; acute form
					• Median age ; male : 44 yrs, female : 35 yrs
Seghal VW[12]	1973	Outpatient Department	158	48.8%	• 13.3% with family Hx of allergy
Warin RP[3]	1974	"Urticaria" : Philadelphia WB Saunder Co	N/A*	-	• 49.5% ; urticaria with angioedema
					• 40.5% ; urticaria alone
					• 11% ; angioedema alone
Tuchinda M[7]	1978	Mahidol University students	1,256	58.2	• 33.11% ; causes identified, most often was seafood
Harris A[13]	1983	Retrospective study urticaria(age<16 yr)	94	N/A*	• Equally affected sex
Tuchinda M[8]	1986	Pediatric Allergy Clinic: urticaria patients	142	-	• Equally affected sex
					• 13.4% ; chronic
					• 27.5% with allergic Hx
					• 76.1% with family Hx of atopy
					• 32.4% ; causes identified
Puavilai S[9]	1988	Ramathibodi Hospital Skin Clinic : urticaria patients	500	-	• 43.8% ; acute form 12.3% ; causes identified
					• 56.2% ; chronic form 12.1% ; causes identified
					• Possible causes ; physical, foods, infections, drugs
Aoki T[14]	1994	Acute urticaria patient	50	-	• 43 cases were cured within 2 weeks

N/A* = not available, Hx = history, yrs = years

with chronic urticaria who were completely healed had a mean disease duration of 14.2 weeks. However, cases with chronic urticaria who had never had a long hive free period since the onset of the disease until the time of the study had a mean disease duration of 6 years. Kozel et al[16] performed a prospective study and reported that 35 per cent of 220 patients with chronic urticaria were symptom-free after 1 year and 28.9 per cent of patients had decreased symptoms. Because of the small number of cases with chronic urticaria in the present study, the authors could not make any comments. Further studies are required.

In summary, the most important conclusion of the present study is that urticaria and/or angioedema is common in Siriraj medical students. This study provides fundamental data about urticaria and angioedema in various aspects such as sex, common forms, causes and aggravating factors, the association with family and atopic history, natural course and behavior of patients seeking treatment, which will be useful in educating affected persons, public health officers and to inform the public in order to understand more about this common condition. It should be noted that the data from the questionnaire-study may not provide accurate causes and aggravating factors. However, subjective opinions of the individuals about the causes and aggravating factors are presented. Moreover, there might be recall bias which might tend to reduce the prevalence number. Another pitfall is that the Siriraj medical students' behavior is likely to be affected by their better educational level. The present study did not obtain details of the causes and course of angioedema. A further study should be performed.

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โรคลมพิษและแองจิโออีดีม่าในนักศึกษาแพทย์ศิริราช

สุขุม เจียมตน, พบ, วทม, ประสมศรี สวัสดิ์อำไพรักษ์, พบ*, กนกวลัย กุลทนันทน์, พบ*, ป่วน สุทธิพินิจธรรม, พบ**

คณะผู้วิจัยได้ศึกษาความชุกของโรคลมพิษและแองจิโออีดีม่าในนักศึกษาคณะแพทยศาสตร์ศิริราชพยาบาล ซึ่งน่าจะบ่งถึงประชากรปกติในวัยหนุ่มสาวในปัจจุบัน และศึกษาสาเหตุหรือปัจจัยกระตุ้นให้เกิดโรค ประวัติในครอบครัว ความสัมพันธ์กับโรคภูมิแพ้ และการดำเนินโรค การศึกษาเป็นแบบภาคตัดขวางในนักศึกษาแพทย์จำนวน 428 คน พบว่าความชุกของการเกิดโรคลมพิษในนักศึกษาแพทย์ร้อยละ 51.6 โรคแองจิโออีดีม่าร้อยละ 19.6 พบทั้งสองโรคร่วมกันในบุคคลเดียวร้อยละ 13.6 มีเพียงร้อยละ 6 ที่เป็นแองจิโออีดีม่าโดยไม่พบโรคลมพิษร่วมด้วย ทั้ง 2โรคพบในเพศหญิงและชายใกล้เคียงกัน โรคลมพิษแบบเฉียบพลันพบร้อยละ 93.2 แบบเรื้อรังพบร้อยละ 5.4 สาเหตุและปัจจัยกระตุ้นได้แก่ความร้อน ฝุ่นละอองและสารสัมผัส พบบ่อยกว่าสาเหตุจากอาหารและยาซึ่งเคยรายงานไว้ในการศึกษาก่อน ๆ ผู้ป่วยโรคลมพิษมักซื้อยารักษาตนเองจากร้านขายยา (ร้อยละ 66) หรือปล่อยให้ผื่นหายไปเอง(ร้อยละ 49) ส่วนน้อยจะไปรับการรักษาจากแพทย์ ไม่พบว่าผู้ป่วยโรคลมพิษและแองจิโออีดีม่ามีโรคภูมิแพ้ (atopic history) บ่อยกว่าผู้ที่ไม่เป็นโรค โรคลมพิษเฉียบพลันมักหายใน 3 สัปดาห์ ส่วนกลุ่มโรคลมพิษเรื้อรังมีระยะเวลาดำเนินโรคเฉลี่ย 14.2 สัปดาห์ ผู้ป่วยโรคลมพิษเรื้อรังที่โรคยังไม่เคยหายเลยจนถึงขณะทำการศึกษามีระยะเวลาดำเนินโรคเฉลี่ย 6 ปี ข้อมูลที่ได้อาจนำไปใช้เพื่อป้องกัน ควบคุมดูแลและรักษาโรค รวมทั้งเป็นข้อมูลพื้นฐานในการศึกษาวิจัยเกี่ยวกับโรคลมพิษและแองจิโออีดีม่าในประชากรชาวไทยต่อไปภายหน้า

คำสำคัญ : โรคลมพิษ, แองจิโออีดีม่า, นักศึกษาแพทย์ศิริราช

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