

ORIGINAL RESEARCH

The real conditions and the number of factors related to asthmatic patients in Quoc Tuan commune - An Lao district and Hong Thai commune - An Duong district in Hai Phong city - Vietnam

Les conditions réelles et le nombre de facteurs liés aux patients asthmatiques dans les communes de Quoc Tuan-district An Lao et de Hong Thai-district An Duong de la ville de Hai Phong-Viet Nam

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ABSTRACT

We conducted a cross-sectional survey in August 2013 on the status of bronchial asthma in Quoc Tuan community in An Lao district, Hong Thai commune, An Duong district, Hai Phong. By the total sampling method, the study conducted 4,477 families, 11,972 people over 16 years of age; 5,768 men and 6,204 women were surveyed directly in the household, combined with medical examination, detection and in-depth interviews of 455 patients. The results are: - The prevalence of asthma in adults is 3.80%, the proportion of women is higher than in men (3.54% and 4.05% $p < 0.05$). The disease can occur at any age, patients with local allergy (38.0%) or with relatives with asthma (35.4%), asthma triggers appear including allergies: weather change (83.7%), stress 48.6%, cold (41.1%), respiratory infections, smoke, dust, food. - Rate severe asthma in third and fourth grade patients accounted for 15.1%. The severity of asthma is related to male sex, over age 60, disease that lasts for more than 5 years, no prophylaxis and health education communication; The difference was statistically significant with $p < 0.05$. Over age 60 and older tended to be less likely to have asthma control than those who were younger and had more controlled prophylaxis than non-drug users; The difference was statistically significant with $p < 0.05$.

KEYWORDS: Asthma, asthmatic patients, asthma control, Hai Phong.

RÉSUMÉ

Nous avons mené une enquête transversale en août 2013 sur le statut de l'asthme dans la commune de Quoc Tuan du district de An Lao et la commune de Hong Thai du district de An Duong de la ville de Hai Phong. Selon la méthode d'échantillonnage totale, l'étude a porté sur 4 477 familles, soit 11 972 personnes de plus de 16 ans; 5 768 hommes et 6 204 femmes ont été interrogés directement chez eux, associés à un examen médical, à la détection et aussi pour les entretiens approfondis avec 455 patients. Les résultats sont les suivants: - La prévalence de l'asthme chez les adultes est de 3,8%, la proportion de femmes est supérieure à celle d'hommes (3,54% et 4,05% $p < 0,05$). La maladie peut survenir à tout âge, chez les patients présentant une allergie locale (38,0%) ou chez des parents asthmatiques (35,4%), des déclencheurs d'asthme apparaissent. Incluant les allergies: changements climatiques (83,7%), stress 48,6%, rhume (41,1%), problèmes respiratoires. infections, fumée, poussière, nourriture. - Le taux d'asthme sévère chez les patients de troisième et quatrième années représentait 15,1%. La sévérité de l'asthme est liée au sexe masculin, à l'âge de plus de 60 ans, à une maladie qui dure depuis plus de 5 ans, à l'absence de prophylaxie et de communication en matière d'éducation pour la santé. La différence était statistiquement significative avec $p < 0,05$. Les personnes de plus de 60 ans et plus avaient tendance à être moins susceptibles de contrôler leur asthme que celles qui étaient plus jeunes et avaient une prophylaxie mieux contrôlée que les non-utilisateurs de médicaments. La différence était statistiquement significative avec $p < 0,05$.

MOTS CLÉS: Asthme, patients asthmatiques, contrôle de l'asthme, Hai Phong.

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INTRODUCTION

Bronchial asthma (or asthma) is a global social disease, because of high incidence, rapid increase and affect the health and life of many people [1]. Vietnam does not have a comprehensive survey on the incidence of asthma in the whole country. Therefore, to study the situation of bronchial asthma, some factors related to the disease in the local, to timely propose reasonable solutions to strengthen the prevention and treatment of asthma control. As well as contributing to the prevention of chronic bronchial disease in general.

We conducted this study in Quoc Tuan commune, An Lao district and Hong Thai commune, An Duong district - Hai Phong city with the following objectives:

- 1) To identify the prevalence and characteristics of adult asthma in the two surveyed communes in 2013.
- 2) To describe some factors related to bronchial asthma in patients.

METHODES

Study subjects

Commune of Quoc Tuan - An Lao district; Hong Thai commune - An Duong district of Hai Phong city.

Patients with asthma were included

Study period: in August 2013.

Methods

Research design

Methods of cross-sectional survey research.

Basic data collection techniques include direct household interviews, in-patient interviews, clinical examination, peak expiratory flow measurements, and laboratory tests.

The research tools include survey questionnaires, questionnaires, detail questionnaires developed for each target group, examining tools, peak flow meter.

Sample and sample selection

Sample size is determined by the formula for sample size for cross sectional study as describing below.

$$n = Z^2_{1-\alpha/2} \cdot \frac{p(1-p)}{(p e)^2} \quad (1)$$

n is the sample size; $Z_{21-\alpha/2}$ is the confidence factor, which is 1.96 (corresponding to 95% confidence).

The greatest variance of the study was compared with the actual one, taking $e = 0.3$.

Calculated according to the sample size of the sample of 1,380 people, in order to increase the reliability we surveyed all adults living in the commune with 11,972 adults > 16 years old.

Sample selection: by the method of total sampling (list all households in the commune, then survey each household to the end).

Standard for selecting patients with asthma

All patients with asthma are present, through local surveys and visits. Diagnosis criteria for bronchial asthma (according to GINA 2008 guidelines for asthma diagnosis in the community):

There are four symptoms in the present or in the past: signs of repeated difficulty breathing; repeated wheezing; persistent cough with white sputum recurrence; severe recurrent chest pain. Signs that occur in the same circumstances, such as weather changes, exertion, exposure to allergens, respiratory infections, difficulty breathing or appearing or heavy at night or early morning, may be spontaneously recovered without treatment.

For the cases of with non-typical asthma when the patient has only persistent wheezing, persistent cough, recurrent severe chest oppression with a personal history of atopy, family with asthma or allergy, or when the symptoms happening it responds well to steroids or bronchodilators. They should do bronchial reversibility test; eliminate all the cases of difficulty breathing due to other causes.

Data analyze

Statistical method was done by SPSS software.

RESULTATS

Characteristics of asthmatic patients

Investigated by 11,972 people the results are presented in Table 1.

The incidence of asthma in the two communes is 3.80%, there are significant differences between the two general sex and adults. Significant differences were found in the incidence of asthma among men and women (3.61% and 4.05%) $p < 0.05$.

Object	Total population surveyed		Incidence of asthma in adults		P
	N	(%)	N	(%)	
Sex					
Male	5.768	48.2	204	3.54	< 0.05
Female	6.204	51.8	251	4.05	
Total	11.972	100	455	3.80	

TABLE 2 Distribution of patients by age of survey

Age	16-19	20-29	30-39	40-49	50-59	60-69	70-79	> 80	Total
Number of surveys	784	2.587	2.361	2.301	2,057	817	606	459	11.972
Number of patient	2	19	38	84	120	83	70	39	455
Percentage (%)	0.3	0.7	1.6	3.7	24.7	15.68	16.47	12.54	3.8

Comments: Diseases occur at any age; Age group of patients are aged 50 years and older

TABLE 3 Educational level of patients (n = 455)

Level	Illiteracy	Primary school	Elementary school	High school	Intermediate - University	Total
n	27	126	214	73	14	455
Percentage (%)	5.9	27.7	47.0	16.3	3.0	100

Comment: The majority of patients with low levels of education: 27.7% of primary school; 47.0% of elementary school; and 5.9% was illiterate. The number of patients with intermediate or higher level is very low.

TABLE 4 Occupations of patients (n = 455)

Job	Farmer	Worker	Retire	Student	Housewife	Public services	Total
n	323	43	53	4	26	6	455
Percentage (%)	71.0	9.4	11.6	0.9	5.7	1.3	100

Comment: Most patients do farming; economic conditions were difficult; other occupations accounted for a small proportion.

TABLE 5 Distribution of patients by number of years of illness (n = 455)

Number of years	< 5	6 - 10	11 - 15	16 - 20	> 20	Total
Result						
n	206	73	24	34	118	455
Percentage (%)	45.3	16.0	5.3	7.5	25.9	100

Comment: Patients with disease lasting more than 5 years accounted for a high proportion: 54.7%; less than 5 years was 45.3%, over 20 years accounted for 25.9%.

TABLE 6		Percentage of patients according to economic conditions and living environment	
Economic conditions, living environment		Total (n = 455)	
		Number	Percentage (%)
<i>Economy (n = 455)</i>	Good	17	3.7
	Medium	364	80.0
	Near poor	31	6.8
	Poor	43	9.4
<i>Living environment (n = 455)</i>	Cats and dogs	311	68.3
	Damp housing	72	15.8
	Planting trees with allergens	69	15.2

TABLE 7		Allergic individual elements (n = 455)							
Result	Element	Allergies in general	Allergic rhinitis	Pruritus, urticaria	Indigo	Drug allergy	Food allergies	Family history of allergies	Total
	Number of patients		173	76	128	3	15	11	
Percentage (%)		38,0	16,7	28,1	0,7	3,3	2,4	35,4	

Economic life was good of 3.7%, average of 80.0%, 6.8% of patients were living near poor and 9.4% of patients were in poverty. A significant proportion of patients at the home was 15.8%. The percentage of planting tree in house was 15.2% (Table 6).

Patients with asthma or history of at least 1 other allergic asthma were 38.0%; the number of allergic rhinitis was 16.07%. The percentage of urtica/pruritus was 28.1%; 35.4% patients had the relatives who also had asthma (Table 7).

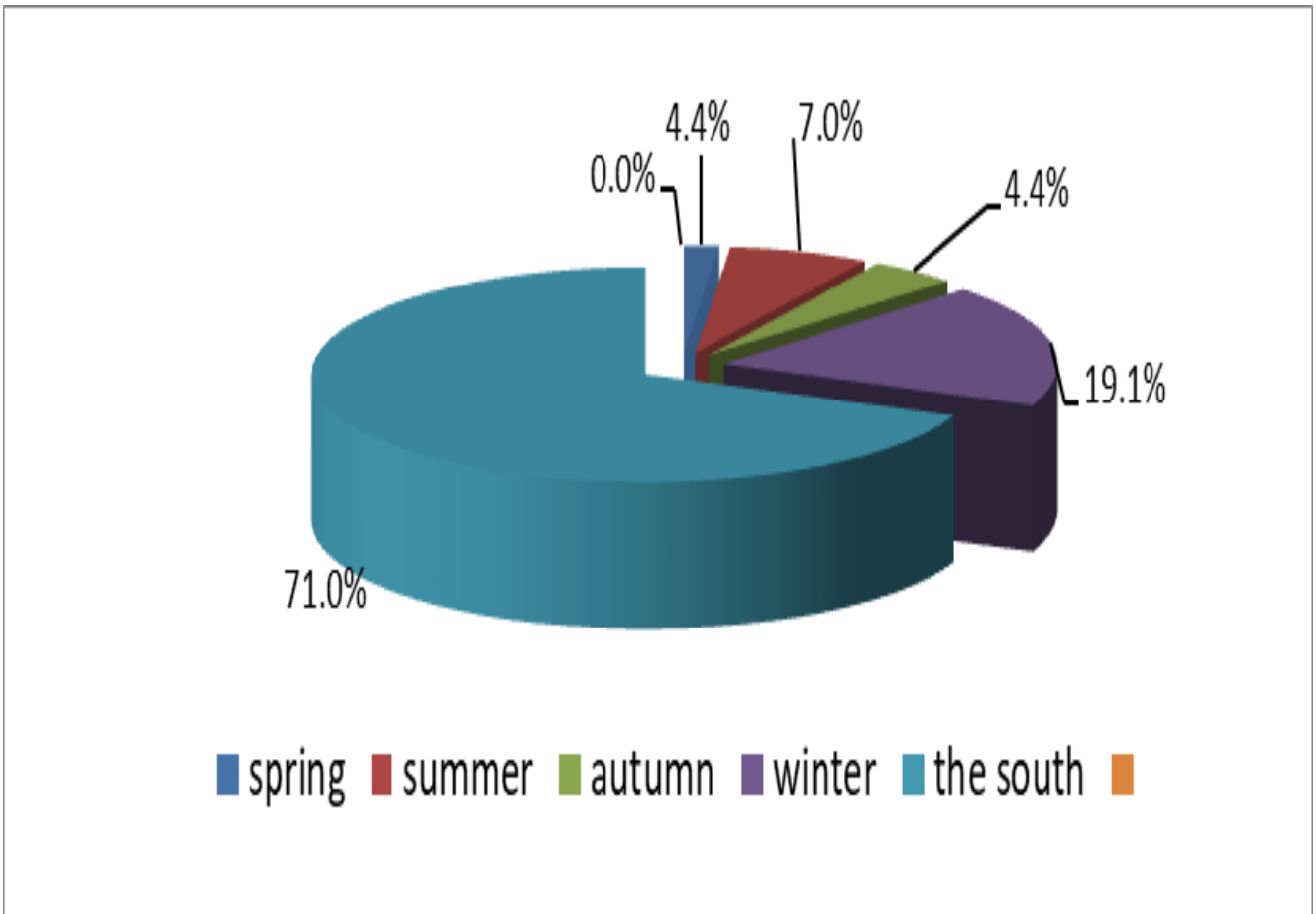


FIGURE 1. Seasonal periods with asthma symptoms.

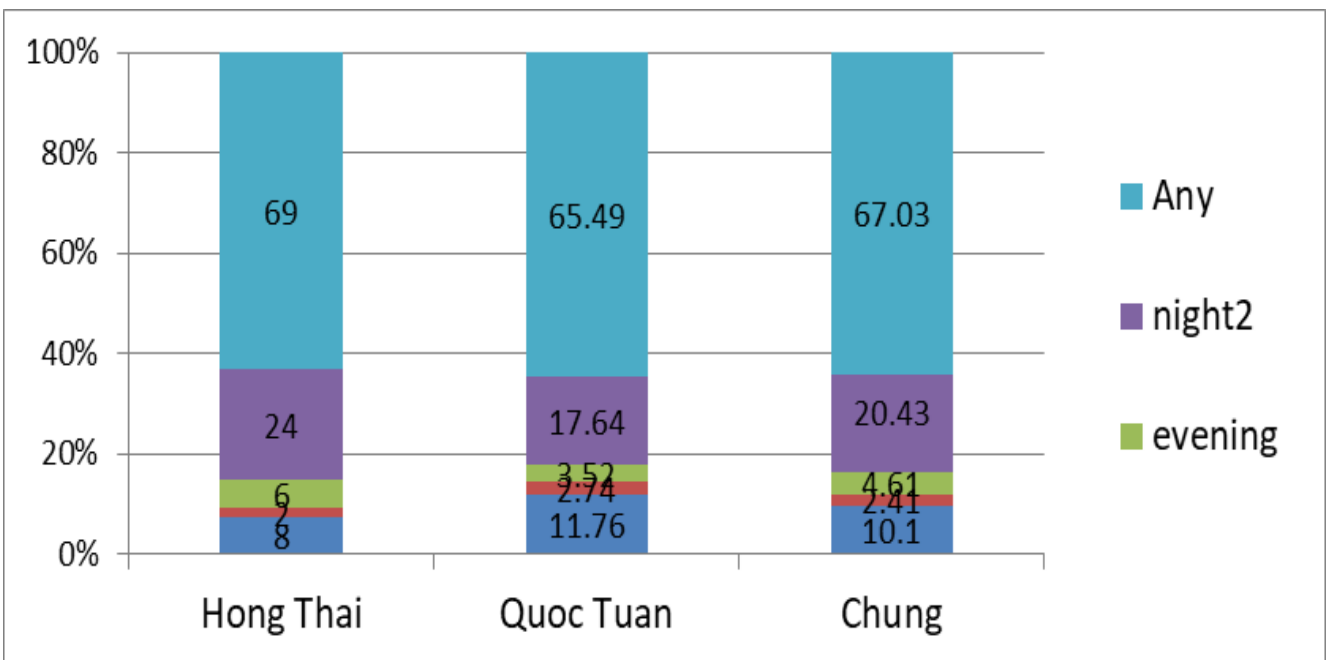


FIGURE 2. Occurrence of asthma attacks during the day.

There were 67.0% of asthma patients at any time of the day; occurs at night with 20.4% higher than at other times of the day (Figure 1).

Most patients present asthma attacks at any time of the year (71.0%); 19.1% had asthma symptoms in winter, higher than the rest (Figure 2).

TABLE 8 Triggers for asthma appearing (n = 455)

Result	Agent	Changed weather	Cold	Respiratory infections	Physical exertion	Dust - Chemicals	Feeling	Foods
n = 455		381	187	55	221	79	14	6
Percentage (%)		83.7	41.1	12.1	48.6	17.4	3.1	1.3

Comment: Rapid weather changes were the most common factor that prompts asthma attacks (83.7%), followed by exertion (48.6%), and cold weather (41.1%).

TABLE 9 Classification of severity of asthmatic patients

Level	Level 1	Level 2	Level 3	Level 4
Result				
Number of patients (n = 455)	185	146	56	13
Percentage (%)	40.6	32.1	12.3	2.8

Comment: Severe asthma accounts for 15.1% of patients.

TABLE 10 Factors related to severity in patients with asthma: n = 455

Characteristics		Degree of asthma				OR (95%CI)	P
		Severe (Stages of 3-4)		Mild (Stages of 1 -2)			
		n	%	n	%		
Sex	Male	51	56.7	153	41.9	1.812 (1.137-2.887)	<0.05
	Female	39	43.3	212	58.1		
Age group	>60	48	53.3	143	39.2	1.774 (1.115 – 2.823)	<0.05
	16-59	42	46.7	222	60.8		

TABLE 10
(NEXT)

Factors related to severity in patients with asthma: n = 455

Characteristics		Degree of asthma				OR (95%CI)	P
		Severe (Stages of 3-4)		Mild (Stages of 1 -2)			
		n	%	n	%		
<i>Economic status</i>	Poverty - poor	20	22.2	54	14.8	1.646 (0.926-2.924)	>0.05
	Good - medium	70	77.8	311	85.2		
<i>Academic level</i>	Below elementary	37	41.1	115	31.5	1.518 (0.944-2.439)	>0.05
	Lower secondary school	53	58.9	250	68.5		
<i>Job</i>	Farmer	65	72.2	258	70.7	1.078 (0.645-1.802)	>0.05
	Other jobs	25	27.8	107	29.3		
<i>Family factor</i>	Someone with asthma	28	31.1	97	26.6	1.248 (0.754-2.064)	>0.05
	No relatives have asthma	62	68.9	268	73.4		
<i>History of allergy</i>	Yes	37	41.1	136	37.3	1.175 (0.734-1.882)	>0.05
	Not	53	58.9	229	62.7		
<i>Years of asthma</i>	>5 years	63	70.0	186	51.0	2.246 (1.368-3.685)	0.001
	≤5 years	27	30.0	179	49.0		
<i>Prevention by medicine</i>	Yes	21	23.3	22	6.0	4.745 (2.474-9.103)	<0.001
	Not	69	76.7	343	94.0		
<i>Communicated health education</i>	Direct	11	12.2	8	2.2	6.214 (2.421-15.951)	<0.001
	Indirect	19	21.1	49	13.4	1.726 (0.958-3.110)	>0.05
	Both directly and indirectly	7	7.8	5	1.4	6.072 (1.881-19.608)	0.001

Comment: The severity of asthma is related to male sex, over 60 years of age, disease that lasts more than 5 years, no prevention treatment, and health communication. The difference was statistically significant with $p < 0.05$. For the remaining relevant factors, the difference was not statistically significant with $p > 0.05$.

TABLE 11 Factors related to the level of asthma control of patients

Characteristics	Level of asthma control				OR (95%CI)	P	
	Uncontrolled		Partial control and complete control				
	n	%	n	%			
Sex	Female	80	53.0	171	55.2	1.141 (0.771-1.688)	>0.05
	Male	71	47.0	133	44.8		
Age group	≥ 60	148	48.7	43	28.5	2.383 (1.567-3.623)	<0.001
	16-59	156	51.3	108	71.5		
Economic status	Near poor- poor	55	18.1	19	12.6	1.535 (0.874-2.694)	>0.05
	Good - medium	249	81.9	132	87.4		
Academic level	Below Eeementary	106	34.9	46	30.5	1.222 (0.804-1.858)	>0.05
	Lower secondary school	198	65.1	105	69.5		
Job	Farmer	213	70.1	110	72.8	0.872 (0.565-1.347)	>0.05
	Other jobs	91	29.9	41	27.2		
Family factor	Someone with asthma	83	27.3	42	27.8	0.975 (0.630-1.508)	>0.05
	No relatives have asthma	221	72.7	109	72.2		
Prevention by medicine	Yes	125	41.1	48	31.8	1.498 (0.993-2.262)	>0.05
	Not	179	58.9	103	68.2		
Years of illness	> 5 years	166	54.6	83	55.0	0.986 (0.666-1.459)	>0.05
	≤ 5 years	138	45.4	68	45.0		
Prevention by medicine	Yes	35	11.5	8	5.3	2.326 (1.051-5.147)	<0.05
	Not	269	88.5	143	94.7		
communicated health education	Direct	14	4.6	5	3.3	1.410 (0.498-3.989)	>0.05
	Indirect	44	14.5	24	15.9		
	Both directly and indirectly	9	3.0	3	2.0		

Comments: Over age of 60 and older tended to have no control of asthma than those with lower age group and patients who received the drug had higher control than those who did not. The difference was statistically significant with $p < 0.05$. For the remaining relevant factors, the difference was not statistically significant with $p > 0.05$.

DISCUSSION

The study showed that the rate of asthma in adults in two studied communes is 3.80%. Compared with other studies done by Nguyen Nang An in the Northern provinces, Pham Huy Quyen in Hong Bang district and An Duong district, Vu Minh Thuc in Lach Tray ward in Hai Phong, and Sy D.Q in Da-lat, our results are similar to these reports [1,6,7,8]. There is no difference in the incidence of asthma in the two study communes with the other studies because of the chronic disease, so there is no difference in the area of study, the time of study, and the years of study [1].

The prevalence of asthma in adults in this study was 3.8%, with significant differences in rates of sex between men and women (3.54% male and 4.05% in female). This finding is consistent with other studies such as Nikon KN, Mc Fadden and in the literature [4]. Study on the level of culture of patients, the results show that the majority of patients with low educational level, lower secondary education accounted for 80.9%, a significant number of illiterate was up to 5.9%. The low level of general education of asthma patients may be due to illness that is not treated well, resulting in learning disability, drop-outs, or medical expenses, which can lead to inability to invest in the study.

Current asthma patients with at least one other allergic manifestation were 38.0%, with the most common allergic pruritus or urtica was being 28.1%; rhinitis allergy 16.7%. This result shows that patients with bronchial asthma have obvious allergic conditions. The family allergy also appears in local asthma patients when they investigate family history of asthma and allergies: up to 35.4% of asthmatic patients have their relatives had asthma. This feature is also consistent with other authors and the literature [1,5,7] that reports about asthma.

For asthma triggers or severe illnesses including allergens, the studied results show that sudden weather changes are the most common cause of asthma attacks (83.7%), followed by physical exertion 48.6%, and cold weather for 41.1%. Many studies have confirmed that respiratory allergens, environment conditions along with other stimulants, especially sudden weather changes, are the factors that trigger asthma attacks. Therefore, the asthmatic patient as well as the physician who receive administering asthmatic patients need to know to take necessary measures to prevent the disease to be exacerbated.

CONFLIT OF INTERESTS

The authors declare no conflict of interests for the present study.

In view of the severity of local asthma patients as well as the complications left on those patients by severe asthma or by inadequate treatment, we found that 15.1% patients with severe asthma. This finding suggests that asthma occurs with more severe randomized features or may be a consequence of a lack of adequate knowledge and prevention measures of the patient and physicians in the local resources [7,8].

The severity of asthma is related to male sex, over 60 years of age, disease that lasts for more than 5 years, no prophylaxis and educational communication; the difference was statistically significant with $p < 0.05$. Over age 60 and older, it tended to have less control of asthma than those with lower age group and had higher prophylaxis to control the disease than non-drug users; the difference was statistically significant with $p < 0.05$. Thus, the aware of asthma prevention should be propaganda. The guidelines for patients to enhance control treatment and the appropriate support for each target group are needed to improve asthma control status.

CONCLUSION

The prevalence of bronchial asthma in the two communes is 3.80% with the percentage of women is higher than that of men (4.05% vs 3.54 and $p < 0.05$). The rate of severe asthma in patients (grade III and IV) accounts for 15.1%. The history of allergy for individuals and families of asthma patients is quite common. There is 35.4% of patients with asthma have relatives with asthma and 38% allergic. There are rash and urticaria of 28.1% and allergic rhinitis of 16.7%.

Asthma triggers most likely due to weather changes: Up to 83.7% of asthmatic asthma triggers are due to weather changes. Moreover, the severity of asthma is related to male sex, over 60 years of age, disease lasting more than 5 years, no prevention treatment, and not receive medical communication: the difference is statistically significant with $p < 0.05$. Over age 60 and older tends to have less control of asthma than those with lower age group and had higher prophylaxis to control the disease than non-drug users: the difference was statistically significant with $p < 0.05$.

We suggest that 1) The interventions for bronchial asthma patients are required in the community due to the high incidence of asthma in the community; 2) Patients should be approached for the treatment of asthma control.

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