

Knowledge of Asthma among Caregivers of Asthmatic Children: Outcomes of Preliminary Education

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Objectives: To assess the knowledge of asthma among the caregivers of asthmatic children and to evaluate the outcomes of preliminary education

Material and Method: The caregivers of asthmatic patients aged 2-15 years who attended the pediatric chest clinic of King Chulalongkorn Memorial Hospital from January to December 2003 were randomly recruited to answer the questionnaire about asthma prior to the educational discussion with the investigators or nurses. The questionnaire was done again 6 months later. The significant factors associated with adequate knowledge and change of knowledge of the caregivers were identified.

Results: Among the 79 study caregivers, forty-two (53.2%) had sufficient knowledge of asthma (score ≥ 34 out of 44). The average pre-test score was 33 ± 3.6 (24-42). The duration of caring for their asthmatic child was the only significant factor associated with adequate knowledge ($p < 0.05$). After the educational session, the post-test score was significantly improved (36.0 ± 2.6 ; $p < 0.001$).

Conclusion: Half of the caregivers of the asthmatic children had insufficient knowledge of asthma. Education about asthma is still needed to improve their knowledge.

Keywords: Asthma, Children, Knowledge, Caregiver

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The prevalence of childhood asthma is increasing worldwide including Thailand⁽¹⁻³⁾. It is emerging as an important public health problem in developing countries⁽⁴⁾. Inadequate control of asthmatic symptoms will lead to the child's absence from school as well as parental absence from work and poor quality of life among family members^(5,6). Appropriate asthma care including self management can help children prevent acute exacerbations, stay free from symptoms, and keep physically active. Parental or caregivers' understanding of the disease process, appropriate use of medications and preventive measures are important for effective management especially in young children⁽⁷⁾. Previous studies showed that the number of hospitalization due to asthmatic attack in children were as-

sociated with parental knowledge about the illness^(8,9). However, many families of young children with asthma still lack knowledge of the disease and failed to recognize and respond appropriately to symptoms and signs that preceded a severe attack^(4,10).

In order to improve the knowledge of asthma among the caregivers, their baseline understanding and misperception of the illness should be disclosed. Moreover, identification of the factors associated with the parental knowledge will help to facilitate the effectiveness of the educational program given to the parents or caregivers of asthmatic children.

Objectives

The present study was aimed to assess the caregivers' knowledge of asthma and to identify factors associated with their understanding about childhood asthma. In addition, the effect of preliminary educational program on the caregivers' knowledge was also evaluated.

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Material and Method

A prospective analytic study was performed on the caregivers of children aged 2-15 years who were diagnosed as asthma by physicians and were followed up at the pediatric chest clinic, King Chulalongkorn Memorial Hospital during January to December 2003. The caregivers were randomly recruited to answer the questionnaire. Those who were not primary caregivers or used to attend any educational programs about asthma during the previous 6 months would be excluded from the present study.

The questionnaire consisted of 44 questions relating to natural history, preceding symptoms, and signs of asthmatic attack, initial management, medications, and prevention of exacerbation. It was developed and modified from the previous studies^(11,12). The validity and reliability of the questionnaire were performed by four experts and interviews of 10 volunteered caregivers during a pilot study. According to the results of a previous study in Thai families⁽¹¹⁾ and the experts' opinions, those who could answer correctly at least 34 out of 44 questions ($\geq 77\%$) were considered to have adequate knowledge to cope with childhood asthma. The informed consent was obtained before answering the questionnaire (pre-test). After answering all the items of the questionnaire, the investigators would give them the correct information about the illness and discussed about their concerns and misunderstanding. The patients were then followed up every 2-3 months according to their clinical status. To ensure the effect of the authors' educational discussion with the caregivers, all of the caregivers were asked not to attend any other asthma education programs during the study period. The post-test was performed during the follow up visit 6 months later by using the same questionnaire. Factors significantly associated with adequate knowledge among the caregivers were identified and the results of asthma education were assessed by comparing the pre-test and post-test scores.

All the data were collected and analyzed by using SPSS 11.0. The mean \pm SD was used to describe caregiver score. The significant variables from univariate analysis were further analyzed in a multivariate model. Those variables with p-value < 0.05 were considered statistically significant.

Results

Seventy-nine caregivers of the 79 patients were enrolled. Most of the caregivers (83.5%) were mothers. 94.8% had only one child with asthma. The majority of them (79.7%) had an educational level

below the graduate school. Twenty-seven percent of the caregivers had experience on their own asthmatic or allergic diseases.

The duration of asthma care for their children ranged from 1 to 11 years, with the mean duration of 4.1 ± 2.6 years. Although 77.2% stated that they had received information about their child's illness from the physicians, almost half (49.4%) of the caregivers were still worried about self-management of their own child (Table 1).

The age of the 79 asthmatic children whose parents or caregivers were recruited in the present study ranged from 2-15 years. Eighty-seven percent of them had mild to moderate persistent asthma and received inhaled corticosteroids to control their symptoms (Table 2).

With correct answers of all the items in the questionnaire, the total score of 44 would be obtained. The highest score that the caregivers could achieve was 42 while the lowest score was 24. The mean score was 33.6 ± 3.6 . Only 53.2% (42/79 cases) of the caregivers had an adequate knowledge of asthma (≥ 34 scores or $\geq 77\%$). Less than 50% of the caregivers could answer five questions correctly (Table 3).

According to univariate and multivariate analysis, the only significant factor associated with adequate knowledge of asthma among the caregivers was the longer duration of caring for asthmatic children (4.7 ± 2.6 vs 3.4 ± 2.5 years; $p < 0.05$). The details of other factors probably related to the knowledge of asthma are shown in Table 4.

After the educational discussion on asthma, the mean post-test score of the 79 caregivers increased to the acceptable level and significantly higher than the pre-test score (36.0 ± 2.6 vs 33.6 ± 3.6 ; $p < 0.001$). The number of those who answered all the five questions in Table 3 correctly significantly increased. Fifty-six caregivers (70.9%) had significant improvement in their asthma knowledge (increased 4 scores). However, nine cases (11.4%) still got the same score while 14 cases (17.7%) got a lower score compared with their pre-test scores.

Discussion

As the prevalence of childhood asthma is increasing, it was expected that the awareness and knowledge about the disease would be increasing among the caregivers. However, the authors found that only 53.2% of the caregivers had an acceptable level of asthma knowledge despite having been the key person in caring of asthmatic children for at least 1

Table 1. Demographic data and previous experiences about asthma of the caregivers

Characters	Total 79 cases
Age (years) mean \pm SD (range)	37.1 \pm 7.9 (22-61)
Number of asthmatic children in family	
1 child	75 cases (94.9%)
\geq 2 children	4 cases (5.1%)
Occupation	
- housewives	31 cases (39.2%)
- business officers	29 cases (36.7%)
- sellers	14 cases (17.7%)
- government officers	4 cases (5.1%)
Educational level	
- high school & undergraduate	63 cases (79.7%)
- graduate, postgraduate	16 cases (20.3%)
Information about asthma	
- from physicians	61 cases (77.2%)
- from medias	18 cases (22.8%)
Previous experiences about asthma	
- used to have asthma/allergic diseases	21 cases (26.6%)
- duration of taking care of asthmatic child	4.1 \pm 2.6 (1-11 years)
Confidence in taking care of asthmatic children	
- being worried	39 cases (49.4%)
- not worried	40 cases (50.6%)

Table 2. Characteristics of the involved 79 asthmatic children

Characters	No of cases (%)
Male:female	1.8:1
Age (years)	
- mean \pm SD (range)	6.7 \pm 2.8 (2-15)
Duration of asthma (years)	4.1 \pm 2.6 (1-11)
Severity of asthma	
- mild intermittent	10 cases (12.7 %)
- mild persistent	37 cases (46.8 %)
- moderate persistent	32 cases (40.5 %)
Medications	
- bronchodilators	75 cases (94.9 %)
- inhaled corticosteroids	69 cases (87.3 %)

Table 3. The questions about asthma that more than 50 % of the caregivers could not answer correctly (% of incorrect answer)

1. Is vomiting a preceding symptom of acute exacerbation ? (63.3%)
2. Can an asthmatic child have shortness of breath without any warning symptoms ? (84.8%)
3. Does antiallergic medication relieve symptoms during acute exacerbation ? (77.2%)
4. Does mucolytic relieve acute respiratory distress ? (86.1%)
5. Can sunlight alone get rid of house dust mites from the beddings ? (57%)

Table 4. Factors associated with caregiver's knowledge of asthma

Characters	Caregivers with adequate knowledge (n = 42)	Caregivers with inadequate knowledge (n = 37)	p-value
Caregiver's characters:			
• Age (years)	38.6 ± 6.7	35.4 ± 8.9	ns
• Duration of caring for asthmatic child (yrs)	4.7 ± 2.6	3.4 ± 2.5	0.02*
• Educational level	11 (26.2%)	5 (13.5%)	ns
- graduate, postgraduate			
• ≥ 2 asthmatic children in family	2 (4.8%)	2 (5.8%)	ns
• Asthma information from physician	31 (72.8%)	30 (81.1%)	ns
• Previous history of asthma/allergic disease	12 (28.6%)	9 (24.3%)	ns
• Being worried about asthma management	18 (42.9%)	21 (56.8%)	ns
Children's characters:			
- Age (years)	6.9 ± 2.4	6.6 ± 3.2	ns
- Asthma severity			
Mild intermittent	6 (14.3%)	4 (10.8%)	ns
Mild & moderate persistent	36 (85.7%)	33 (89.2%)	ns
- Use of inhaled corticosteroid	40 (95.2%)	35 (94.6%)	ns

* Statistically significant (from both univariate and multivariate analysis)

ns = not significant difference

year and being previously informed about their child's illness by the physicians. The present findings disclosed that almost half of the caregivers still lacked sufficient knowledge of asthma. This is similar to the observation in previous reports from Malaysia, Pakistan and South Africa⁽¹³⁻¹⁵⁾. From the present study, the duration of caring for the asthmatic child was the only factor significantly associated with adequate knowledge of asthma among the caregivers. This supports the impact of personal experience on learning and understanding. In contrast to previous reports, the present study could not demonstrate the association between adequate asthma knowledge with the age, and educational level of the caregivers⁽¹¹⁾, the age and severity or the use of inhaled corticosteroids of their asthmatic children⁽¹⁴⁾. The misunderstandings about childhood asthma included the preceding manifestations of acute exacerbation, reliever medications, and preventive measures. These findings were quite similar to the studies in the past^(13,16,17) despite a lot of educational media about asthma are much more available nowadays.

The present study supported the previous studies on the impact of the asthma education program^(7,8,18). After the preliminary education was given to the caregivers during the beginning of the present study, there was significant improvement in the asthma knowledge to the acceptable level. However, there was

a significant proportion (17.7%) of the caregivers who got lower scores compared to their previous ones. This might indicate that the knowledge obtained from the educational discussion with the physicians or nurses did not last long. Only one session of asthma education was inadequate for long term improvement of asthma knowledge among the caregivers. The repetition of education programs or other effective means of education should be encouraged.

Conclusion

Fifty-three percent of the caregivers of asthmatic children had adequate knowledge of asthma in the present study. The duration of caring for their asthmatic child was the only significant factor associated with the adequate knowledge. Preliminary education given at the beginning of the present study resulted in overall improvement of the asthma knowledge. However, there were changes of knowledge over time among the study caregivers. Therefore, regular asthma education and evaluation of the caregivers' knowledge and understanding about childhood asthma should be performed in order to achieve effective management of the patients.

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ความรู้เรื่องโรคหืดของผู้ปกครองเด็กโรคหืด: ผลของการให้ความรู้เบื้องต้น

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วัตถุประสงค์: เพื่อประเมินความรู้ของผู้ปกครองเด็กที่ป่วยด้วยโรคหืด และผลของการให้ความรู้เกี่ยวกับโรคหืด
วัสดุและวิธีการ: ทำการศึกษาโดยให้ผู้ปกครองของผู้ป่วยเด็กอายุ 2-15 ปีที่มารักษาที่โรงพยาบาลจุฬาลงกรณ์ ระหว่าง มกราคม - ธันวาคม พ.ศ. 2546 ตอบแบบสอบถามเกี่ยวกับโรคหืดในเด็กก่อนที่จะให้ความรู้ที่ถูกต้อง นัดผู้ป่วยมารับการรักษาทุก 2-3 เดือนตามความรุนแรงของโรคโดยไม่ได้รับความรู้เรื่องโรคหืดจากที่อื่น และให้ตอบแบบสอบถามอีกครั้งในเวลา 6 เดือนต่อมา

ผลการศึกษา: ร้อยละ 53.2 ของผู้ปกครอง 79 รายที่เข้าร่วมการศึกษา มีความรู้ในระดับที่ผ่านเกณฑ์ (ได้ ≥ 34 จาก 44 คะแนน) ระยะเวลาในการดูแลเด็กโรคหืด เป็นปัจจัยเดียวที่สัมพันธ์กับความรู้ซึ่งผ่านเกณฑ์ ($p < 0.05$) หลังได้รับความรู้ที่ถูกต้องแล้ว สามารถตอบแบบสอบถามได้คะแนนผ่านเกณฑ์ และดีขึ้นอย่างมีนัยสำคัญทางสถิติ (36.0 ± 2.6 vs 33.0 ± 3.6 ; $p < 0.001$) ในการศึกษาไม่พบวาระดับการศึกษาของผู้ปกครอง และความรุนแรงของโรคหืดในเด็กมีผลต่อความรู้เรื่องโรคหืดของผู้ปกครองซึ่งต่างจากการศึกษาที่ผ่านมา

สรุป: เกือบร้อยละ 50 ของผู้ปกครองยังมีความรู้เกี่ยวกับโรคหืดในระดับที่ไม่ผ่านเกณฑ์ การให้ความรู้ที่ถูกต้องอย่างต่อเนื่องแก่ผู้ปกครองในช่วงที่มาติดตามการรักษาจะช่วยให้ความรู้ดังกล่าวดีขึ้น ซึ่งจะนำไปสู่การดูแลรักษาที่มีประสิทธิภาพต่อไป
