Actual Implementation of the Thai Asthma Guideline

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Objective: *To determine the clinical impact of Thai Asthma Guideline implementation.*
Material and Method: *A nationwide written questionnaire survey was used for 365 Thai physicians who were involved in routine asthma practice. The questionnaire consisted of two questions; the first concerning the criteria to define steps of asthma severity (16 parameters) and the second concerning controller use in each step of asthma severity, focusing on the use of inhaled corticosteroids (ICS).*
Results: *Of 272 physicians (74.5%) who responded to the questionnaire; 21, 76 and 175 were chest physicians, general practitioners (internists), and general doctors, respectively. All the non-responders could not provide answers to the questionnaire because they were unable to remember them all. More than 12 out of 16 parameters in the first question were filled out correctly by only 14%, 4% and 5% of chest physicians, general practitioners and general doctors, respectively, whereas fewer than 5 out of 16 parameters were answered correctly by 33%, 66% and 71% of these physicians, respectively. The most common parameters answered incorrectly by general doctors were FEV_1 and PEF variability. ICS was the most common controller used in controlling each step of persistent asthma. However, only 46.8% of general doctors prescribed it for the management of mild persistent asthma.*
Conclusion: *The Thai Asthma Guideline is impractical for clinical practice implementation, due to complicated severity grading and a very low rate of lung function tests for grading asthma severity. Although ICS is the most common controller prescribed, its use is still far from optimal in Thailand. The authors suggest that the Thai asthma guideline should be simplified and aimed towards optimal ICS use among generalists.*

Keywords: *Asthma, GINA guideline, Implementation, Inhaled corticosteroids, Thai Asthma guideline*

J Med Assoc Thai 2005; 88(7): 898-902
Full text. e-Journal: *http://www.medassocthai.org/journal*

Asthma is an inflammatory disease of the airway that affects 6.8% of the adult population in Thailand[1]. To improve asthma management and outcome, the Thai Thoracic Society initiated the Thai Asthma Guideline in 1994[2] and revised it in 1997[3]. After implementation of the Thai Asthma Guideline, an asthma survey study by Boonsawat et al from 2000 to 2001 indicated that asthma was still far from controlled in Thailand. Only 6.7% of asthma patients used inhaled corticosteroids for controlling asthma[4], which might result in a high rate hospitalization (14.8%/year) and absence from work (25%).

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Why is asthma in Thailand undercontrolled despite the 10-year existence of the guideline? The authors hypothesized that the Thai Asthma Guideline was not used by Thai physicians in the management of asthma because it was too complicated. Therefore, the authors performed the present study to test this hypothesis. the present study had two objectives; 1) to see whether Thai physicians used the severity classification of the Thai Asthma Guideline in their clinical practices and, 2) to see how many doctors prescribed inhaled steroids to control each step of persistent asthma.

Material and Method

The authors used a one-page fill-in-the-blank questionnaire to collect the data needed. The questionnaires were distributed nationwide between March and August 2003 to the physicians, who were

responsible for asthmatic patients and knew of the existence of the Thai Asthma Guideline through pharmaceutical sale representatives.

The questionnaire comprised 2 main questions. Firstly, the authors asked for the criteria needed to define each step of stable asthma as mentioned in the Thai Asthma Guideline. This guideline classified asthma severity in the same way as the GINA Guideline[5], into 4 steps as follows: step 1, mild intermittent asthma; step 2, mild persistent asthma; step 3, moderate persistent asthma; and step 4, severe persistent asthma. Criteria to define each step of asthma had 4 parameters: daytime symptoms, nocturnal symptoms, forced expiratory volume in 1 second (FEV_1) or peak expiratory flow (PEF), and PEF variability. Therefore, the doctors had to fill out 16 slots in question 1, as shown in Table 1. The doctors were not allowed to open a book or the guideline while answering the questionnaire. The answer to question 1 from each doctor was graded as A, B, C, or D if the number of correct parameters were > 12, 9-12, 5-8 and ≤ 4, respectively.

The second question asked for the controller used most commonly in the treatment of persistent asthma step 2 to 4. The questionnaire also asked for the specialty of doctors; whether they were chest physicians, general practitioners (internists) or general doctors. Other classes of doctor were not included in the present study.

Statistical analysis

The data were analyzed statistically by frequency tables, number, percentage distribution and using Chi-square test to fine the association between the parameters and the 3 groups of physicians. $P < 0.05$ was considered significant.

Results

A total of 365 questionnaires was distributed and 272 were returned (response rate = 74.5%). All non-responders could not provide answers in the questionnaire because they were unable to remember them all. The responders consisted of 21 chest physicians, 76 general practitioners and 175 general doctors.

The majority of doctors in each group was graded D (Table 2). Only 14%, 4% and 5% of chest physicians, general practitioners and general doctors, respectively, were graded A. Although chest physicians could answer the first question significantly ($p < 0.05$) better than the other two groups of doctors, only 8 (38%) of them were able to fill in more than 50% of the slots correctly.

To determine which parameters in the severity classification were more difficult to remember, the authors performed a subgroup analysis to see the percentage of correct answers in each parameter among the 3 groups of physicians (Table 3). The authors found that chest physicians scored higher than the others in every parameter. However, they were not so different from the others in answering for daytime and night time symptoms. The percentages of correct answers for daytime and nighttime symptom parameters from chest physicians were only 38% and 35%, respectively. In contrast, the chest physicians did much better in both lung function parameters, FEV_1/PEF and PEF variability ($p < 0.001$). Only 22% of FEV_1/PEF and 9% of PEF variability could be answered correctly by the general doctors.

The uses of inhaled steroids for controlling persistent asthma among the 3 groups of physicians are shown in Table 4. More than 90% of chest physicians used inhaled steroids for controlling each step of persistent asthma. On the contrary, only 46.8% of general doctors prescribed inhaled steroids to treat patients with mild persistent asthma.

Discussion

Management of asthma is problematic worldwide. Not only in Thailand, but data from developed

Table 1. Knowledge of the criteria needed to define Asthma severity by 4 parameters (questionnaire 1) (n = 272)

Parameters	Asthma severity			
	Step 1: Mild intermittent	Step 2: Mild persistent	Step 3: Moderate persistent	Step 4: Severe persistent
Daytime symptoms	(< 1/week)	(≥ 1/week, < 1/day)	(≥ 1/day)	(continuous)
Nocturnal symptoms	(≤ 2/month)	(> 2/month)	(> 1/week)	(frequent)
FEV_1 or PEF	(≥ 80% predicted)	(≥ 80% predicted)	(60-80% predicted)	(≤ 60% predicted)
PEF variability	(< 20%)	(20-30%)	(> 30%)	(> 30%)

FEV_1 = Forced expiratory volume in 1 second, PEF = Peak expiratory flow

Table 2. Number of doctors in each grade classified by number of correct answers

Grade	Doctors		
	Chest physicians (n = 21)	General practitioners (n = 76)	General doctors (n = 175)
A	3 (14%)	3 (4%)	8 (5%)
B	5 (24%)	7 (9%)	11 (6%)
C	6 (29%)	16 (21%)	32 (18%)
D	7 (33%)	50 (66%)	124 (71%)

Table 3. Percentage of correct answers in each parameter among 3 groups of doctors

Parameters	Doctors		
	Chest physicians (% correct)	General practitioners (% correct)	General doctors (% correct)
Daytime symptoms	38*	22	26
Nocturnal symptoms	35	28	25
FEV_1/PEF	55**	22	22
PEF variability	57**	19***	9

* $p < 0.05$ when compared with general practitioners and general doctors
** $p < 0.001$ when compared with general practitioners and general doctors
*** $p < 0.001$ when compared with general doctors

Table 4. Use of inhaled corticosteroids in controlling each step of persistent asthma among 3 groups of doctors

Asthma severity	Doctors		
	Chest physicians (n = 21)	General practitioners (n = 76)	General doctors (n = 175)
Mild persistent	19 (90.5%)	59 (77.6%)*	82 (46.8%)**
Moderate persistent	21 (100%)	69 (90.8%)	144 (82.3%)***
Severe persistent	19 (90.5%)	64 (84.2%)	147 (84.0%)

* $p < 0.0001$ when compared with chest physicians
** $p < 0.0001$ when compared with chest physicians and general practitioners
*** $p < 0.05$ when compared with chest physicians

countries such as France and the United States, also showed that the majority of asthma patients were undertreated[6,7]. Current use of inhaled steroids in Thai asthmatic patients is only 6.7%[4], which is the lowest rate when compared with 13.6% in other Asia Pacific countries, 15% in the United States and 23% in Europe[8-10]. That low rate accounted for the high hospitalization rate (14.8%) which represented the poor asthma control index in Thailand.

There are many factors that can explain the low rate of inhaled steroid use and poor asthma control in Thailand. The present study showed that the asthma guideline was an important factor because it was very complicated, particularly the part of severity classification. Most Thai physicians, including chest specialists, could not memorize the criteria to define each step of asthma severity that was used to guide stepwise therapy. This phenomenon was also seen in the study by Doerschug et al, where US physicians were poor at assessing asthma severity according to the guideline[11]. The most difficult parts of severity classification in the guideline were symptom parameters. All groups of doctors were poor at answering these parameters, which were very complicated. In contrast to symptom parameters, the present study demonstrated that chest physicians scored significantly higher in the lung function test parameters than general practitioners and general doctors. In the meantime, general doctors scored lowest in the lung function parameters, particularly PEF variability. This indirect evidence showed that general doctors did not use lung function tests in their clinical management of asthma in the community.

Besides its complexity, the guideline is also vague. Actually, severity classification in the guideline comprises 5 parameters; 2 symptoms, 2 lung functions and 1 exacerbation parameter. However, the definition of exacerbation in each step of asthma severity is not clear. For example, the authors do not know the criteria to define "brief" and "frequent" exacerbation in step 1 and step 4, respectively. Therefore, the authors did not include the exacerbation parameter in the questionnaire.

Eventually, the number of inhaled steroids prescribed by general doctors in Thailand was unacceptably low when compared with chest physicians in the Kingdom. This may reflect asthma care by specialists as more compliant with the guideline than treatment by generalists, which is the same result as previous studies[12,13]. Unfortunately, the majority of asthmatic patients in Thailand are taken care of by

general doctors. Therefore, a way has to be found to improve the knowledge of general doctors regarding asthma for a better outcome of asthma management in Thailand. Ting suggested using the "multicolored simplified asthma guideline reminder (MSAGR)" to help physicians in recalling the classification of asthma severity and management[14]. He showed that MSAGR improved the outcome of asthma management by a 25% reduction in asthma-related hospitalization and emergency visits. However, this method may not be suitable at a community hospital in Thailand, where the patients at the out-patient department are very heterogeneous in their diseases.

Therefore, the authors would like to suggest, according to the present study, that the Thai Asthma Guideline is too complicated and hard to memorize. It should be revised, and made clearer and easier to remember. Data from the study by Vollmer et al showed that specialists were more likely to increase the use of anti-inflammatory agents to control very severe asthma when compared with generalists[13]. He suggested that specialists might be more suitable to take care of more severe disease[13]. The authors can conclude from his study that our guideline might have more than one version, the complicated and the simple. The complicated one, which is the guideline currently used, may be appropriate for specialists. The simple one that focuses only on the basics of asthma knowledge and the use of inhaled corticosteroids may be suitable for generalists. The authors predict that if the simpler guideline is used and vigorously implemented nationwide, the use of inhaled steroids for controlling asthma will be increased dramatically from its current status. In cases, where inhaled steroids cannot control the generalist's asthmatic patients, those severe cases can be referred to specialists instead.

Conclusion

Asthma in Thailand is still far from controlled. The Thai Asthma Guideline is one of the defects in controlling asthma because it is too complicated, particularly when memorizing the severity classification. Therefore, most Thai physicians, especially general doctors, do not use the Thai Asthma Guideline, in particular the lung function tests, in staging asthma severity and monitoring response to treatment. Although inhaled steroids are the most common controller being prescribed in the management of asthma, they are still underused in Thailand. Therefore, the Thai Asthma Guideline should be revised, and made clearer and easier to remember and it should focus on the use of inhaled corticosteroids in controlling asthma to improve overall asthma outcome in the community.

Acknowledgment

The authors wish to thank Boehringer Ingelheim Pharmaceuticals, Thailand, for distribution of our questionnaires and returning them for analysis.

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การนำแนวทางการรักษาโรคหืดแห่งประเทศไทยไปใช้จริงในเวชปฏิบัติ

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วัตถุประสงค์*: เพื่อศึกษาว่าแนวทางการรักษาโรคหืดแห่งประเทศไทยได้ถูกนำไปใช้ในเวชปฏิบัติหรือไม่*
วัสดุและวิธีการ*: เป็นการสำรวจข้อมูลโดยส่งแบบสอบถามไปยังแพทย์เวชปฏิบัติทั่วประเทศไทยที่มีการดูแลรักษาผู้ป่วยโรคหืดในเวชปฏิบัติเป็นผู้กรอก แบบสอบถามจะประกอบไปด้วย 2 ส่วน ส่วนแรกจะเป็นคำถามเกี่ยวกับเกณฑ์การแบ่งขั้นความรุนแรงของโรคหืด (ซึ่งมีทั้งหมด 16 ตัวแปร) ตามนิยามของแนวทางการรักษาโรคหืดแห่งประเทศไทย ส่วนที่ 2 เป็นคำถามเกี่ยวกับยาที่ใช้ในการควบคุมโรคหืด (โดยเฉพาะอย่างยิ่งยาพ่นสเตียรอยด์) ในแต่ละขั้นของโรค*
ผลการศึกษา*: มีแพทย์ทั้งสิ้น 272 คน (ร้อยละ 74.5) ที่ตอบแบบสอบถาม ในจำนวนนี้ 21, 76, และ 175 คน เป็นแพทย์โรคทรวงอก, อายุรแพทย์, และ แพทย์ทั่วไปตามลำดับ แพทย์ที่ไม่ตอบแบบสอบถามได้ให้เหตุผลในการไม่ตอบว่า "ไม่สามารถจดจำเกณฑ์การแบ่งขั้นความรุนแรงของโรคหืดตามแนวทางการรักษาโรคหืดแห่งประเทศไทยได้" ในส่วนแพทย์ที่ตอบแบบสอบถามพบว่าเพียงร้อยละ 14, 4, และ 5 ของแพทย์โรคทรวงอก, อายุรแพทย์, และแพทย์ทั่วไปตามลำดับเท่านั้นที่สามารถตอบแบบสอบถามถูกต้องเกิน 12 จาก 16 ตัวแปร ในขณะที่มีแพทย์ถึงร้อยละ 33, 66, และ 71 ตามลำดับที่ตอบแบบสอบถามข้อแรกถูกต้องไม่ถึง 5 ตัวแปร ตัวแปรที่แพทย์ทั่วไปตอบผิดมากที่สุดคือ FEV1 และ PEF variability ยาพ่นสเตียรอยด์เป็นยาที่ แพทย์ใช้ในการควบคุมโรคหืดมากที่สุด แต่พบว่าร้อยละ 46.8 ของแพทย์ทั่วไปเท่านั้นที่ใช้ยาพ่นสเตียรอยด์ ในการควบคุมโรคหืดเรื้อรังขั้นอ่อน*
สรุป*: แนวทางการรักษาโรคหืดแห่งประเทศไทยไม่ได้ถูกนำไปใช้ในเวชปฏิบัติอย่างแท้จริงเนื่องจากแนวทางดังกล่าวมีความซับซ้อนเกินไปในการแบ่งขั้นความรุนแรงของโรค และยังขาดการใช้สมรรถภาพปอดในการประเมินความรุนแรงของโรคในเวชปฏิบัติเป็นอย่างมาก ถึงแม้ว่ายาพ่นสเตียรอยด์จะเป็นยาที่ใช้ควบคุมโรคหืดบ่อยที่สุด แต่ปริมาณการใช้ยังน้อยกว่าที่ควรอยู่อย่างมาก ผลการวิจัยนี้บ่งว่าแนวทางการรักษาโรคหืดแห่งประเทศไทยควรปรับปรุงให้ง่ายแก่การจดจำมากกว่าเดิม และเน้นให้แพทย์ทั่วไปเข้าใจถึงความจำเป็นในการใช้ยาพ่นสเตียรอยด์ในการควบคุมโรคหืดอย่างเหมาะสม*