A Knowledge of Asthma in School Children: A Survey among Primary School Teachers

M B Bahari, N Md Nur, A F Ab Rahman

ABSTRACT

A survey was carried out among primary school teachers in the district of Kota Bharu, Malaysia to assess the level of knowledge on asthma and its management. Our findings revealed that primary school teachers were less informed about the management and treatment of asthma. They were relatively more knowledgeable about the causes and symptomatology of asthma. The majority of respondents had misunderstanding regarding the effect of rain, smoking and cold weather on asthma. It is important that teachers should be able to recognise symptoms of an asthmatic attack or take the necessary precautions to avoid such an attack. Many teachers agreed on the need to have an asthma education programme in their teaching curriculum.

Keywords: teachers, primary school, knowledge, asthma, Malaysia

Singapore Med J 2003 Vol 44(3):131-135

INTRODUCTION

Asthma is the most common chronic disease of childhood[1]. Its incidence is the highest in primary school children and it is the principal cause of school absenteeism and reduced participation in school activities[2,3]. The prevalence of asthma in Malaysian children has been reported to range from 4.9% to 13.8%[4-6]. A similar rate has been reported in other developing countries[7].

Next to the home, children spend most of the day at school. Physical education activities may put school children with asthma at risk, since attacks are likely to occur during or immediately after exercise. It is therefore important that these children are given proper asthmatic management either in the form of preventive measures or if they develop symptoms at school. Like other school systems in developing countries, most schools in Malaysia do not have permanent full-time nurses, thus placing the responsibility for daily asthma management of students with asthma on nonmedical staff and teachers.

Since improved knowledge of parents has been shown to improve asthma in their children[8], it would be expected that improved knowledge of school teachers would give similar outcomes when the children are at school. Restrictions in school activities seemed to be less if the children sensed an understanding of their disease from the teachers[2]. With improved knowledge, teachers should be able to manage the school children with asthma and deal with emergency medical situations appropriately. To assess this, it is important to know their knowledge about childhood asthma.

Local data on disease-related knowledge among school teachers are scarce. This study was aimed to assess the level of knowledge regarding asthma and its management among primary school teachers in the Kota Bharu district of Malaysia. Primary school is the first school system under the Ministry of Education to offer formal education to children aged seven to twelve years old. It is hoped that the findings would enable us to identify areas of limited understanding as well as to provide a foundation for the development of a disease-related teaching programme to school teachers.

METHOD

Twenty primary schools from Kota Bharu district were randomly selected from the list of schools provided by the Kota Bharu Department of Education. Only primary schools with Malaysian National Language (Bahasa Malaysia) as their medium of instruction were included.

Fifteen sets of questionnaires were given to each headteacher accompanied with an explanatory letter regarding the study. The questionnaires were then randomly distributed to 15 teachers in each school and collected seven to 10 days later.

The questionnaire was written in Bahasa Malaysia. It comprised of 44 statements about the teacher's previous personal encounter or exposure to asthma, causes of asthma, symptomatology,

Clinical Pharmacy Program
School of Pharmaceutical Sciences
Universiti Sains Malaysia
Minden
11800 USM
Pulau Pinang
Malaysia

M B Bahari, Pharm D
A/Prof and Chairman

A F Ab Rahman, Pharm D
Lecturer

Department of Pharmacy
Hospital Tengku Ampuan Afzan
Kuantan

N Md Nur, M. Pharm
Clinical Pharmacist

Correspondence to:
M B Bahari
Tel: (604) 657 7888
Ext: 4089
Fax: (604) 657 0017
Email: baidi@usm.my

Table I. Knowledge of teachers about asthma and its causes.

	Correct answer	Number (%) of teachers who gave correct answer	Number (%) of teachers who gave incorrect answer	Number (%) of teachers who didn't know the answer
Asthma is caused by allergic reaction of the respiratory tract	True	192 (68.57)	14 (5)	74 (26.43)
Asthma is caused by infection of the respiratory tract	False	107 (38.21)	63 (22.5)	110 (39.24)
Asthma is caused by constriction of the respiratory tract	True	148 (52.86)	19 (6.79)	113 (40.36)
Asthma is an inherited disease	True	214 (76.43)	27 (9.64)	39 (13.93)
Asthma can cause retardation of growth	False	120 (42.86)	45 (16.07)	115 (41.07)
Asthma can spread to other students	False	220 (78.57)	17 (6.07)	43 (15.36)
Cough and cold can lead to asthmatic attack	True	213 (76.07)	27 (9.64)	40 (14.29)
Inhalation of cigarette smoke will aggravate asthmatic attack	True	17 (6.07)	217 (77.5)	46 (16.43)
Playing in the rain can lead to an attack	True	33 (11.79)	203 (72.5)	43 (15.36)
Playing in cold wind can lead to an attack	True	21 (7.5)	224 (80)	35 (12.50)
Playing in dusty area can lead to an attack	True	249 (88.92)	5 (1.78)	26 (9.29)

Table II. Knowledge of asthma and its symptomatology.

	Correct answer	Number (%) of teachers who gave correct answer	Number (%) of teachers who gave incorrect answer	Number (%) of teachers who didn't know the answer
Asthmatic attack is more frequent at night than day time	True	249 (88.93)	4 (1.43)	27 (9.64)
Asthmatic students have difficulty in breathing	False	250 (89.29)	8 (2.86)	22 (7.86)
Asthmatic students often complain of headache	False	117 (41.79)	49 (17.5)	114 (40.71)
Asthmatic students often complain of drowsiness	False	98 (35)	95 (33.93)	87 (31.07)
Wheezing after exercise suggests asthma	True	143 (51.07)	61 (21.79)	76 (27.14)
Asthmatic students can participate in all type of sports	True	219 (78.21)	32 (11.43)	29 (10.36)
Asthmatic student is often less active in sports	False	29 (10.36)	233 (83.21)	18 (6.43)
Asthmatic student tires easily	False	253 (90.36)	7 (2.5)	20 (7.14)
Children can die from asthma	False	167 (59.64)	33 (11.79)	80 (28.5)

Table III. Knowledge on the management of asthma.

	Correct answer	Number (%) of teachers who gave correct answer	Number (%) of teachers who gave incorrect answer	Number (%) of teachers who didn't know the answer
All asthmatic students require antibiotic therapy	False	55 (19.64)	107 (38.21)	118 (42.14)
Asthma can be treated using vaccine	False	74 (26.43)	28 (10)	178 (63.57)
Patient with asthmatic attack can be given any inhaler	False	135 (48.21)	55 (19.65)	90 (32.14)
Salbutamol inhaler is effective during attack	True	175 (62.5)	4 (1.43)	101 (36.07)
Inhaler containing powder can also be used to abort an attack	False	45 (16.07)	31 (11.07)	204 (72.85)
Asthmatic student should be given necessary medication before games	True	98 (35)	40 (14.29)	142 (50.71)
Student with asthmatic attack should be allowed to go home after inhalation therapy	False	89 (31.79)	100 (35.71)	91 (32.5)
Asthma is not a serious disease and should not be referred to hospital	False	228 (81.43)	13 (4.64)	39 (13.93)
Student suffering an asthmatic attack should be given two days leave	False	98 (35)	74 (26.43)	108 (38.57)

management and overall teacher's opinion on the asthma education programme. Questions and statements were adapted from the literature and standard texts[9-12]. Respondents marked either yes, no, true, false, and don't know. For opinion on the asthma education programme, respondents answered as do not agree, agree and strongly agree.

Descriptive statistic was used as appropriate and presented as percentages. Chi-square test was used for comparison of responses between groups of teachers with different years of teaching experience. A p value of less than 0.05 was considered significant.

RESULTS

Twenty schools participated in the study. 280 (93.9%) questionnaires were completed and collected out of 300 total questionnaires distributed. The mean age of respondents was 35.9 years (range 20-60 years). The majority of teachers were female (65.7%) and Malay (95.4%). The average teaching experience was found to be 12.7 years.

The majority of respondents had observed another individual having an asthmatic attack before. Most teachers knew about asthma either by having students, friends or another person suffering from asthma. Many had read about asthma but only five (1.79%) had ever attended a course or seminar on asthma.

Table I shows teachers' understanding on the causes of asthma. In general, the majority of teachers gave the correct answers to statements on causes of asthma. Only 38.21% knew that asthma is not an infection. The teachers answered poorly on the effects of cigarette (6.07% correct), playing in the rain (11.79% correct) and cold wind (7.5% correct) on asthma.

Table II indicates the responses of teachers to statements on the symptomatology of asthma. Most teachers did not believe that asthmatic children tire easily and perhaps, therefore many thought correctly that such children can participate in all type of sports. However, more than 80% agreed that these children are less active in sports. Table II also shows that the majority of teachers were aware that asthmatic students do not have difficulty in breathing and that attack increases at night.

Compared to the findings on causes and symptomatology of asthma, many teachers did not know or gave the wrong answers to questions or statements related to the management of asthma. However 62.5% of the teachers knew that the

widely used salbutamol inhaler is effective to abort an asthmatic attack. About 80% of the respondents did not think that asthma is not a serious disease and that children should not be referred to the hospital. Only a third of them did not think that children should be sent home or be given a leave of absence after an asthmatic attack. Table III summarises the responses of teachers to statements on the management and treatment of asthma.

Overall, there was no significant difference between correct responses obtained from teachers with more teaching experience (more than five years) and those with less experience.

Teachers' responses concerning the need of asthma education and management in school were very encouraging. The majority of teachers agreed that all teachers should know about asthma and its therapy (99.6%) and that an educational programme on asthma and its management should be included in teacher's training curriculum (92.14%). Nearly 90% of teachers agreed that asthmatic children should be encouraged to bring their medications to school. 98.2% agreed that such medications should be included in the school's first aid box.

DISCUSSION

Teachers' response to statements on causes of asthma was relatively satisfactory. There were high percentages of incorrect responses from teachers regarding the effects of smoking, rain and cold wind. The significance of this finding cannot be ascertained since all school compounds are designated as non-smoking areas. During the northeast monsoon season, areas like the east coast of Peninsular Malaysia experience heavy rain spells as well as periods of intense surges of cold air from the north (cold surges). However, this time of the year usually coincides with school holidays.

Many teachers have a good knowledge of the symptomatology of asthma despite lack of training. More than 50% of teachers had previous personal experience to asthma rather than a structured training. The teachers were relatively mature and experienced and this may have had a bearing on their responses. It is interesting to find that teachers believed that asthmatic children do not tire easily and should be encouraged to be involved in sports. This may reflect personal observation of asthmatic children since more than 60% of teachers said they had students with asthma in their class.

On average there was a relatively higher percentage of teachers who answered "don't know" under matters concerning asthma management indicating limited understanding on this subject compared to causes and symptomatology of asthma. Similar findings have been reported by others[9,13]. Knowledge on management is considered important because teachers may need to supervise the administration of inhalers, consider whether the child should take part in school games or may have to send the sick child home or to health professionals[14]. Since there is no medical personnel in school, this may include initial management of any medical emergencies which take place at school. Teachers also need to be aware of the symptoms of asthma and be able to distinguish between preventer and reliever medications.

Teachers in our study responded favourably to having an education training on asthma in their teaching curriculum. Furthermore, many would allow children to bring their medications to school. Improvement in the teachers' knowledge after an educational intervention has been reported[12]. It would be expected that improving the knowledge of teachers should then reinforce good management and improve asthma outcomes at school. Guidelines to train teachers in appropriate asthma care have been published[15,16]. We suggest that any development of school policy regarding disease-related management at school should take into consideration these findings.

ACKNOWLEDGEMENT

We thank the state education director and all headteachers for their permission to conduct this study. We further acknowledge the cooperation given by teachers who participated in the study.

REFERENCES

1. Lee DA, Winslow NR, Speight ANP and Hey EN. Prevalence and spectrum of asthma in childhood. Br Med J 1983; 286:1256-8.
2. Bremberg SG, Kjellman NIM. Children with asthma: how do they get along at school? Acta Paediatr Scand 1985; 74:833-40.
3. Bener A, Abdulrazzaq YM, Debuse P and Abdin AH. Asthma and wheezing as the cause of school absence. J of Asthma 1994; 31:93-8.
4. Azizi HO. Respiratory symptoms and asthma in primary school children in Kuala Lumpur. Acta Paediatr Jpn 1990; 32:183-7
5. Leung R and Ho P. Asthma, allergy, and atopy in three south-east Asian populations. Thorax 1994; 49:1205-10.
6. Quah BS, Abdul Razif AR, Mohamad Hashim MH. Prevalence of asthma, rhinitis and eczema among schoolchildren in Kelantan, Malaysia. Acta Paediatr Jpn 1997; 39:329-35.
7. Moosa SEI and Henley LD. An evaluation of parental knowledge of childhood asthma in a family practice setting. S Afr Med J 1997; 87:42-5.
8. Fireman P, Friday GA, Gira C, Vierthaler WA and Michaels L. Teaching self-management skills to asthmatic children and their parents in an ambulatory care setting. Pediatrics 1981; 68:341-8.
9. Bevis M and Taylor B. What school teachers know about asthma? Arch Dis Child 1990; 65:622-5.
10. Brook U. An assessment of asthmatic knowledge of school teachers. J Asthma, 1990; 27:159-64.
11. Eisenberg JD, Moe EL and Stillger CF. Educating school personnel about asthma. J Asthma 1993; 30:351-8.

12. Henry RL, Hazell J and Halliday JA. Two hour seminar improves knowledge about childhood asthma in school staff. J Paediatr Child Health 1994; 30:403-5.
13. Seto W, Wong M, Mitchell EA. Asthma knowledge and management in primary schools in south Auckland. NZ Med J 1992; 105:264-5.
14. Brookes J and Jones K. Schoolteachers perceptions and knowledge of asthma in primary schoolchildren. Br J Gen Pract 1992; 42:504-7.
15. Wilson-Pessano SR and McNabb WL. The role of patient education in the management of childhood asthma. Preventive Medicine 1985; 14: 670-87.
16. The Asthma Special Interest Group, Thoracic Society of Australia and New Zealand. A national policy on asthma management for schools: A position paper. J Paediatr Child Health 1994; 30:98-101.