

## PARENTAL KNOWLEDGE ON CHILDHOOD ASTHMA IN AN OUTPATIENT SETTING

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*A survey was carried out among parents of asthmatic children in Kangar Hospital, Perlis, Malaysia to assess their level of knowledge on childhood asthma and its management. Our findings revealed that parents have adequate knowledge on the causes and symptoms of asthma but were less informed about the management of asthma. It is important that parents should be able to recognise symptoms of an asthmatic attack or take the necessary precautions to avoid such an attack. Parents' or guardians' education pertaining to asthma and its management is therefore recommended.*

**Keywords:** Parental knowledge, asthma, children, treatment

### INTRODUCTION

Asthma is the most common chronic inflammatory condition affecting children with considerable morbidity and mortality. The worldwide prevalence of asthma in recent years is high, particularly in young children (Akinbami and Schoendorf 2002) and the prevalence of asthma among children in Malaysia is about 4.2% (Ministry of Health Malaysia 1997). Further studies showed that the prevalence of asthma in primary and secondary school children in Kota Bharu, Kelantan was 9.4% (Quah *et al.* 1997) and in primary school Kuala Lumpur was 13.8% (Azizi 1990). Bauman *et al.* (1992) found that about 15–20% of primary school children in Australia were diagnosed with asthma. Improvement of parents' knowledge successfully improved asthmatic control on children (Fireman *et al.* 1981). However, local studies showed that the majority of asthmatics and their parents have a limited understanding of their children's disease and management (Norzila *et al.* 2000; Fadzil and Norzila 2002).

In the past few years, many programmes have been developed to help children with asthma and their families. These programmes have been used in outpatient clinics in hospital, medical office settings, computer-

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oriented instructions, camp programmes and short term community agency programmes (Fireman *et al.* 1981; Charles and Gary 1984; Noreen and Charles 1986). Health educations have been evaluated extensively in other developing countries (Mullen and Lawrence 1983; Fitzclarence and Henry 1991). However, local data on the effect of medical education are scarce. In order to implement such programmes, it is important to assess the knowledge about childhood asthma among their parents, guardians and others who are responsible for the healthcare of asthmatic children. Therefore, this study was aimed to assess the level of parental knowledge on childhood asthma and its management.

## METHODS

This study was carried out in an Outpatient Department, Kangar Hospital, Perlis for a period of one and a half months. A questionnaire was developed (Fitzclarence and Henry 1991; Bahari *et al.* 2003) to assess the parental knowledge on cause, effect and management of asthma on their children. The questionnaire was written in Malay. It consisted of 57 items about the parents'/guardians' previous exposure to asthma, etiology (causes) of asthma, drug treatment of asthma and the proper use of asthmatic medications. The questionnaire was pretested on 22 parents/guardians at Pulau Pinang Hospital to test the readability and validity of the questions. Cronbach's- $\alpha$  test was used to evaluate the validity of these questions. It was found to be 0.82, indicating that the questionnaire was valid. The questionnaire was further refined and the revised questionnaire containing 57 items was used for this study.

The subjects of the study were selected from parents/guardians of asthmatic children of 12 years old or younger. Parents/guardians of asthmatic children more than 12 years old were excluded from the study. Convenience sampling was used to select the subjects from the prescription receiving counter. Each subject was given a set of file containing the information about the study, consent form and questionnaire to be completed. Completed consent form and questionnaire were collected at the dispensing counter at the time of drug collection.

Data was analysed using SPSS version 10.5 and descriptive statistic was used where appropriate. To compare the level of knowledge between parents with and without previous exposure to asthma, the

respondents were categorised into two groups. Those who gave correct answer were considered to have adequate knowledge and therefore, were given '1' score. Those who gave incorrect or did not know the answer were considered to have inadequate knowledge and therefore, were given '0' score. Results obtained were statistically analysed using independent-t test at 0.05 significant level.

## RESULTS AND DISCUSSION

A total of 100 parents/guardians participated in the study, 90% Malay and 59% female. Fifty-eight percent were the patient's mothers and 32% were the patient's fathers. Most respondents were within 30–40 years old (44%), 29% received primary school education, 62% received secondary school education and 8% received tertiary education.

Table 1 shows the parents'/guardians' previous exposure to asthma. Majority of parents/guardians knew about asthma through their family members who may have suffered from asthma or have seen someone having asthmatic attack. Thirty-three percent have read books, articles or journals about asthma, but only 8% have attended a seminar or course on asthma.

**Table 1:** Parents'/Guardians' Previous Exposure to Asthma

Previous exposure	Parents' responses	No. of parents/guardians (%)
1 Parents having asthma	Yes	47 (47)
2 Children having asthma	Yes	76 (76)
3 No. of children having asthma	None	24 (24)
	1	58 (58)
	2	10 (10)
	3	5 (5)
	> 3	3 (3)
4 Age of children started to have asthma (years)	< 1	25 (25)
	1–4	25 (25)
	5–10	21 (21)
	10–12	8 (8)
	Not stated	21 (21)
5 Close relatives having asthma	Yes	69 (69)
6 Have seen someone having asthmatic attack	Yes	90 (90)
7 Have attended a seminar/course on asthma	Yes	8 (8)
8 Have read books/articles/journals on asthma	Yes	33 (33)
9 Have received adequate explanation on asthma from a medical doctor	Yes	29 (29)

Seventy-one percent of the parents/guardians answered favourably to the statements on the etiology of asthma, 69% to the statements on proper use of medication for asthma, but only 34.5% percent to the statements on the drug used in the treatment of asthma. This showed that the parents/guardians had a good knowledge on the correct use of medication for asthma, but were unable to recall the name of the medication. This reflects the practice in Malaysia where names of the drugs or active ingredients are not properly written on the label of the medication. Misconception, through the names of medications may affect the compliance to the treatment regimen (Henley and Hill 1990).

Table 2 indicates parents'/guardians' knowledge on the etiology of asthma. In general, 71% of the parents answered favourably to the statements pertaining to the etiology of asthma. However, only 18% of the parents knew that asthma could not spread to another person. Most parents probably misunderstood between asthma and the respiratory tract infection. In most cases, upper respiratory tract infection could precipitate an asthmatic attack in asthmatic children. Taussig *et al.* (1981)

**Table 2:** Parents'/Guardians' Knowledge on Etiology on Asthma

	<b>Statements</b>	<b>Correct n(%)</b>	<b>Incorrect n(%)</b>	<b>Didn't know n(%)</b>
1	Asthma can cause retardation of growth	48 (48)	22 (22)	30 (30)
2	Asthma is an inherited disease	73 (73)	10 (10)	17 (17)
3	Asthma attack is more common at night	87 (87)	5 (5)	8 (8)
4	Asthma attack can cause death to children	73 (73)	2 (2)	25 (25)
5	Playing with cat/dog can lead to an asthmatic attack	86 (86)	4 (4)	10 (10)
6	Playing in the rain can lead to an attack	80 (80)	5 (5)	15 (15)
7	Certain type of food can lead to an attack	74 (74)	6 (6)	20 (20)
8	Wheezing after exercise suggests asthma	81 (81)	2 (2)	17 (17)
9	Asthma is caused by allergic reaction of the respiratory tract	73 (73)	9 (9)	18 (18)
10	Inhalation of cigarette smoke will aggravate an attack	93 (93)	2 (2)	5 (5)
11	Cough and cold can lead to an attack	98 (98)	1 (1)	1 (1)
12	Sports can lead to an attack	55 (55)	22 (22)	23 (23)
13	Asthma can spread to another person	18 (18)	58 (58)	24 (24)
14	Cold weather can lead to an attack	87 (87)	3 (3)	10 (10)
15	Dusts/smokes can lead to an attack	92 (92)	1 (1)	7 (7)
16	Asthma is caused by an infection of the respiratory tract	62 (62)	10 (10)	28 (28)
17	Asthma is caused by the constriction of the respiratory tract	67 (67)	7 (7)	26 (26)

found that children commonly developed bronchitis and asthma simultaneously. In addition, chronic bronchitis and asthma in children may share a lot of similarities pertaining to etiology, pathophysiology and treatment (Knudson *et al.* 1976). Consequently, parents were unable to differentiate the presentation of asthma with respiratory tract infections.

Table 3 shows the parents'/guardians' knowledge on drug treatment of asthma. Only 34.5% respondents gave favourable answers to the statements related to the drug used in the treatment of asthma, in contrast to Fadzil and Norzila (2002) who found that 37.3% of parents did not know the medication for asthma. However, 76% of respondents answered correctly on "routinely used inhaled drug can prevent an asthmatic attack," 68% on "when necessary inhaled drugs can be used to treat an asthmatic attack" and 74% on "when necessary inhaled drugs are effective during asthmatic attack." Therefore, parental knowledge on the drug treatment of asthma is extremely important because parents need to decide and later, administer the appropriate drugs during the attack.

**Table 3: Parents'/Guardians' Knowledge on Drug Treatment of Asthma**

	Statements	Correct n(%)	Incorrect n(%)	Didn't know n(%)
1*	Inhaled sodium Chromoglycate (Intal®) is used in the management of asthma	6 (6)	59 (59)	39 (39)
2	The side effect of inhaled asthmatic drug is lesser than oral drug	39 (39)	16 (16)	45 (45)
3	Inhaled salbutamol (Ventolin®) is used in the management of an asthmatic attack	29 (29)	40 (40)	31 (31)
4	Inhaled terbutaline (Bricanyl®) is used in the management of an attack	22 (22)	47 (47)	31 (31)
5	Any asthmatic drug can be used during an asthmatic attack	38 (38)	45 (45)	17 (17)
6	Trembling is the effect of an asthmatic drug	41 (41)	35 (35)	24 (24)
7	Asthma can be treated using vaccine	26 (26)	20 (20)	54 (54)
8	Nausea is one of the side effects of an asthmatic drug	24 (24)	43 (43)	33 (33)
9	Oral prednisolone can be used in management of asthma	9 (9)	53 (53)	38 (38)
10	Oral salbutamol (Ventolin®) can be used in the management of asthma	35 (35)	33 (33)	32 (32)
11	Oral terbutaline (Bricanyl®) can be used in the management of asthma	20 (20)	46 (46)	34 (34)
12	Oral theophylline can be used in the management of asthma	19 (19)	47 (47)	34 (34)

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Table 3 – (continued)

	Statements	Correct n(%)	Incorrect n(%)	Didn't know n(%)
13	When necessary inhaled drugs can be used to treat an asthmatic attack	68 (68)	4 (4)	28 (28)
14	When necessary inhaled drugs are effective during an asthmatic attack	74 (74)	2 (2)	24 (24)
15	Inhaled beclomethasone is used in the management of an asthma	19 (19)	48 (48)	33 (33)
16	Asthmatic children should always have their inhaled medication with them	75 (75)	6 (6)	19 (19)
17	Asthmatic children should be given inhalation medication before sport activity	40 (40)	21 (21)	39 (39)
18	Asthma can be treated with antibiotics	37 (37)	20 (20)	43 (43)
19	Palpitation is one of the side effects of an asthmatic drug	33 (33)	36 (36)	31 (31)
20	Increase in appetite is one of the side effects of an asthmatic drug	17 (17)	48 (48)	35 (35)
21	Able to use peak flow meter	26 (26)	53 (53)	21 (21)
22*	Routinely used inhaled drug can prevent an asthmatic attack	76 (76)	24 (24)	31 (31)
23	Routinely used inhaled drug is effective during an asthmatic attack	37 (37)	21 (21)	42 (42)

\* Respondents provided more than one response.

In addition, this study also showed that 76% of the respondents were aware of the importance of routinely used peak flow meter, similar to previously reported (Moosa and Henley 1996). The majority of parents in our study were from low income group with monthly income less than RM1,000, therefore keeping peak flow meter was not their priority. However, peak flow meter is one of the parameters that could be used as an indicator of the severity of asthma in a community setting. Furthermore, the measurement of the peak flow reading at home is not a common practice in a Malaysian set-up. Teng and Teng (2002) found that only 25% of the asthmatic patients would like to use peak flow meter.

Table 4 shows the parents'/guardians' knowledge on proper use of medication for asthma. Most respondents answered correctly on the questions related to the general treatment of the asthma including the direction, frequency and the time to take the medication. These findings showed that doctors and pharmacists gave adequate advice on the proper use of the antiasthmatic medications to the parents/guardians. However, there were only 29% respondents who received adequate explanations on

asthma from medical doctors. This suggests that additional explanations were obtained from the pharmacists.

**Table 4:** Parents'/Guardians' Knowledge on the Proper Use of Medication for Asthma

Statements		Yes n(%)	No n(%)
1	Knows how to give oral medication by using spoon	74 (74)	26 (26)
2	Knows how to give oral medication by using medication bottle cap	66 (66)	34 (34)
3	Knows how to give oral medication by using syringe	58 (58)	42 (42)
4	Knows the time when medication needs to be given once a day		
5	Knows the time when medication needs to be given two times a day	80 (80)	20 (20)
6	Knows the time when medication needs to be given three times a day	83 (83)	17 (17)
7	Knows the time when medication needs to be given when necessary	90 (90)	10 (10)
8	Knows how many puff inhaled medications to be taken	49 (49)	51 (51)

Table 5 shows the comparison on the level of parental knowledge between parents with and without previous exposure to asthma. Results showed that the parental knowledge on the etiology of asthma were adequate (range 9.30–14.75, maximum score 17). However, parents with previous exposure to asthma were not significantly different ( $p > 0.05$ ) from those without previous exposure to asthma except for those having seen patients with asthmatic attack or attended a course on seminar.

**Table 5:** Comparison on the Level of Parental Knowledge Between Parents with and without Previous Exposure to Asthma

Type of previous exposure	Group (n = 100)	Etiology (no. of questions is 17)		Drug treatment (no. of questions is 23)		Proper use of medication (no. of questions is 8)	
		Mean	p	Mean	p	Mean	p
Parents have asthma	Yes (47)	12.75	NS	12.91	S	6.55	S
	No (53)	12.64		9.04		5.55	
Children have asthma	Yes (76)	12.63	NS	10.41	NS	6.13	NS
	No (24)	12.79		10.88		5.67	
Close relatives have asthma	Yes (69)	12.68	NS	11.07	NS	6.06	NS
	No (31)	12.67		9.29		5.94	
Have seen asthmatic attack	Yes (90)	13.04	S	11.00	S	6.06	NS
	No (10)	9.30		6.20		5.70	

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Table 5 – (Continued)

Type of previous exposure	Group (n = 100)	Etiology (no. of questions is 17)		Drug treatment (no. of questions is 23)		Proper use of medication (no. of questions is 8)	
		Mean	p	Mean	p	Mean	p
Have attended course on asthma	Yes (8)	14.75	S	15.00	S	6.50	NS
	No (92)	12.49		10.13		5.98	
Have read book on asthma	Yes (33)	13.00	NS	12.06	S	6.55	NS
	No (67)	12.51		9.76		5.76	
Received detailed information on asthma	Yes (29)	13.41	NS	13.62	S	7.24	S
	No (71)	12.37		9.25		5.52	

Note: NS = not significant ( $p > 0.05$ )

S = significant ( $p < 0.05$ )

There were 23 questions used to evaluate parents'/guardians' knowledge on the drug treatment of asthma. The mean score of both parents with and without previous exposure to asthma were low (range 6.20–15.00, maximum score 23). However, parents who have previous exposure to asthma have better knowledge significantly ( $p < 0.05$ ) on drug treatment of asthma except those parents with children or close relatives suffering from asthma.

Further results showed that the parental knowledge for both with and without previous exposure to asthma on the proper use of medication were adequate (range 5.52–7.24, maximum score 8). In addition, parents with previous exposure to asthma were significantly better ( $p < 0.05$ ) in receiving detailed information on asthma, similar to studies previously reported (Fadzil and Norzila, 2002; Teng and Teng, 2002).

## CONCLUSION

The study showed parents/guardians have relatively adequate knowledge on the cause and symptoms of asthma but not its management. A systematic parents/guardians education is indicated to improve their knowledge on the diseases and management of the problems.



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