

MORBIDITY ASSOCIATED WITH ASTHMA AND AUDIT OF ASTHMA TREATMENT IN OUT-PATIENT CLINICS

T O Lim, A Suppiah, F Ismail, T Selvan, N K Irshad Ali Khan, B A Ngah

ABSTRACT

A study was undertaken to determine the extent of morbidity associated with asthma and to audit the management of asthma in two out-patient clinics of two district hospitals. Patients were recruited for the study during a 3-month period from December 1990 to February 1991. Seventy asthmatic patients were studied. Eighty-six percent of the patients had their sleep disturbed by asthma, 77% took daily medication regularly, 63% felt that their activities were restricted by asthma, 60% had at least one acute exacerbation in the preceding six months. Of those who had their peak expiratory flow rate (PEFR) measured, 40% had a PEFR below 50% predicted, and only 11% had normal PEFR (> 80% predicted). The morbidity of asthma was thus considerable. On the other hand, the drug treatment of these asthmatics was grossly inadequate. They were prescribed on average 2.1 item of drugs, which for most patients comprised an oral beta agonist and a theophylline. Only 43% of the patients received inhaler therapy, but no patients were given steroids, inhaled or oral. The drug treatment was unrelated to the severity of patients' asthma. Further, objective measurement of severity was under-used in the assessment of asthma, only 8.5% of patients ever had their PEFR recorded.

This study has found that asthma is poorly managed in out-patient clinics. We need to improve the training of doctors in the optimal management of asthma.

Keywords: Asthma, management; audit, morbidity.

SINGAPORE MED J 1992; Vol 33: 174-176

INTRODUCTION

There is evidence from advanced countries that the prevalence of asthma and its associated mortality and morbidity are rising⁽¹⁻³⁾, despite advances in therapy. Further, investigation of the circumstances of death from asthma, as well as audit of management of asthma in hospital or in general practice have found that much of the mortality and morbidity was avoidable and was related to inadequate assessment and treatment of asthma by doctors⁽⁴⁻¹⁰⁾.

There is hardly any published data on asthma in Malaysia. We have therefore undertaken a study to determine the extent

of morbidity associated with treated asthma and to audit its management in two out-patient clinics.

METHOD

The study was based at the general out-patient clinics of 2 district hospitals in Pahang. Patients previously diagnosed to have asthma by their doctors and who were on treatment were recruited for the study during their routine visits to the clinics. No attempt was made in this study to verify the diagnosis. Two groups of asthmatic patients attending the hospitals were however specifically excluded from the study. They were those who attended because of an acute exacerbation of asthma and those attending a specialized asthma clinic managed by the Consultant Physician of the hospital.

The patients were seen at the out-patient clinics where a questionnaire was completed. The interviews were conducted by medical officers who had received previous instruction on the procedure. The following details were recorded: patient's age and sex, occurrence of sleep disturbance as a result of nocturnal asthmatic symptoms, patient's perception of his need for continuous daily anti-asthma medication, and his perception of how his activities of daily living had been restricted by asthma. The amount of time lost from work or school as a result of asthma as well as the number of acute exacerbations of asthma in the preceding 6 months were also recorded. An acute exacerbation of asthma was defined as an episode of attack of asthma which required the attention of a doctor.

The peak expiratory flow rate (PEFR) was measured with a mini Wright peak flow meter. Three manoeuvres were performed and the best PEFR recorded.

Details of patient's current anti-asthmatic treatment as prescribed by his doctor as well as previous recorded PEFR were obtained from a review of patient's medical record.

Statistical analysis was by student's t test.

RESULTS

Over a period of two months, a total of 70 patients were recruited for the study. Their mean age was 40.5 years (range 7-91), there were 39 male patients and 31 female.

Morbidity

Table I shows the extent of asthma morbidity. The extent was considerable in this group of patients. Nocturnal disturbances occurred in 86% of the patients, 77% felt they needed regular

Medical Unit
Mentakab District Hospital
28400 Mentakab
Pahang
Malaysia

T O Lim, MBCHB(Glas), MRCP(UK)
Physician

A Suppiah, MBBS
Medical Officer

F Ismail, MD (UKM)
Medical Officer

T Selvan, MBBS
Medical Officer

N K Irshad Ali Khan, MBBS
Medical Officer

Jerantut District Hospital

B A Ngah, MBBS
Medical Officer

Correspondence to: Dr T O Lim
Clinical Specialist
Jabatan Nefrologi
Hospital Besar Jalan Pahang
50586 Kuala Lumpur
Malaysia

daily medication, 63% felt that their activities of daily living were restricted, 60% of the patients had at least one acute exacerbation in the previous 6 months, 40% had PEFr values that were less than 50% predicted and only 11% had normal PEFr values (> 80% predicted).

Table I - Extent of Asthma Morbidity

Indices of asthma morbidity	No. of patients (%) (n=70)	
Sleep disturbed by nocturnal asthma (night/week)	0	10 (14)
	1-3	25 (36)
	4 or more	35 (50)
Needed continuous daily medications	Yes	54 (77)
	No	16 (23)
Activities of daily living restricted by asthma	Yes	44 (63)
	No	26 (37)
Time off work/school (weeks)	0	16 (29)
	Less than 1	20 (28)
	more than 1	14 (20)
Can no longer work because of asthma		4 (6)
No. of acute exacerbations	0	28 (40)
	1 or more	42 (60)
PEFR (% predicted)	<50	28 (40)
	50-79	34 (48)
	≥80	8 (11)

Drug Treatment

On average, 2.1 items of drugs were prescribed per patient (range 1-3). The various drug combinations used by the patients is shown in Table II. The most popular type of treatment for asthma was a combination of theophylline and beta agonist which accounted for 77% of all prescriptions. Just under half (43%) the number of patients were on inhaled beta agonist. No patients were given steroids whether inhaled or oral, nor was any Sodium Cromoglycate prescribed.

Table II - Anti-Asthmatic Drugs Used In Treatment

Drugs Combination	No. of patients (%)
Oral beta agonist and theophylline	28 (40)
Oral and inhaled beta agonist and theophylline	21 (30)
Oral beta agonist alone	9 (13)
Inhaled beta agonist and theophylline	5 (7)
Inhaled beta agonist alone	3 (4)
Theophylline alone	3 (4)
Inhaled and oral beta agonist	1 (2)
	70 (100)

Assessment Of Asthma

Only 6 (8.5%) patients had objective measurements like PEFr used to monitor their asthma.

Relation Between Asthma Morbidity And Its Treatment

The drug treatment of patients, in terms of the number and class of drugs prescribed, were unrelated to patients' PEFr, nocturnal symptoms or past acute exacerbation (Table III). Patients with severe asthma (PEFR<50% predicted) were not given significantly more drugs than those with milder asthma (PEFR>80% predicted, t=0.5310, p>0.05). On the other hand,

patients who felt that they needed continuous daily medication and who felt that their activities were restricted were given significantly more drugs than those who did not (t=2.6357 and 2.9978 respectively, p<0.01). The number of drugs prescribed was also related to time off work or school, increasing from 1.4 drugs per patient who had not been off work or school, to 2.4 for those who had been off for longer than 1 week.

Table III - Relation between Asthma Morbidity and Asthma Treatment

(Unless otherwise indicated, figures are percentages of patients)

Indices of asthma Morbidity	No. of Patients	Mean No. of Drug	Drug Treatment			
			Class of drug prescribed			
			Oral beta agonist	inhaled beta agonist	Theophylline	
PEFR (% predicted)	50	28	2.1	89	50	89
	50-79	34	2.0	91	41	79
	>80	8	2.0	75	50	75
Nocturnal Symptoms (days/week)	0	10	2.1	80	40	90
	1 or more	60	2.1	82	41	80
Need daily medication	Yes	54	2.2	85	46	85
	No	16	1.7	75	25	69
Activities restricted	Yes	44	2.3	86	45	91
	No	26	1.7	73	38	65
Time Off work/school (weeks)	0	16	1.4	37	50	69
	<1	20	2.0	100	35	70
	>1	14	2.4	100	43	100
Acute attacks	0	28	2.0	75	39	85
	1 or more	42	2.1	93	40	81

Note: No patients were on Steroid or Sodium Cromoglycate.

DISCUSSION

These results reveal a disturbing amount of morbidity among asthmatics attending the out-patient clinics. It seems that the asthma of this group of patients is unusually severe compared with that of other published series⁽⁸⁻¹⁰⁾. It may be that the sample is highly selected; patients with more severe asthma are more likely to attend hospital clinics and therefore to be included in this study. We were however careful in excluding those asthmatics attending because of acute exacerbation as well as those attending specialized asthma clinics; the two groups of patients most likely to have severe asthma. Although no attempt was made to verify the diagnosis of asthma in this study, we believe that the diagnosis of asthma made by the attending doctors were reliable enough to make our data valid. As the clinics were accessible to the general population, the group of asthmatics in this study is probably representative of a heterogenous population of asthmatics seen in primary care setting.

These results have also revealed considerable deficiencies in the management of asthma:

- (1) Objective measurements of asthma severity were under-used,
- (2) drug treatment was unrelated to asthma morbidity,
- (3) the same number and type of drugs were given to most asthmatics irrespective of their severity,
- (4) oral antiasthmatic drugs, mostly oral beta agonist and theophylline were the mainstay of therapy.

The most disconcerting finding in this study was that no patient was on steroids. By current recommendations⁽¹²⁾, ster-

oids would have been indicated in 85-90% of these patients. Many unnecessary asthma deaths have been connected with the under-use of steroids^(4,5,13) and much of the morbidity associated with asthma are reversible by more intensive therapy which included steroids^(14,15).

In other Asian countries, like Hong Kong, similar under-utilization of inhaled drug and of steroid has been shown⁽¹⁶⁾. In the United Kingdom, similar deficiencies of care, though of lesser degree, have also been found^(7,10).

There is no doubt we have a long way to go in the education and training of doctors, especially those in primary care, in the optimal management of asthma.

Acknowledgement

This paper was presented at the Silver Jubilee Malaysia-Singapore Congress of Medicine in October 1991.

We wish to thank all the MOPD and OPD staff for their cooperation and assistance in the conduct of this study. I also wish to thank my secretary, Ms S H Shim who typed the manuscript.

REFERENCES

- 1 Fleming DM, Cromble DL: Prevalence of asthma and hay fever in England and Wales. *Br Med J* 1987; 294: 279-83.
- 2 Burney: Asthma mortality in England and Wales. Evidence for a further increase 1974-1984. *Lancet* 1986; i: 323-6.
- 3 Benator SR: Fatal asthma. *N Engl J Med* 1986; 314: 423-9.
- 4 British Thoracic Association. Death from asthma in two regions of England. *Br Med J* 1982; 285: 1251-5.
- 5 Eason J, Markowe HLJ: Controlled investigation of deaths from asthma in hospitals in the North East Thames region. *Br Med J* 1987; 294: 1255-8.
- 6 Bucknall CE, Robertson C, Moran F, Stevenson F: Differences in hospital management. *Lancet* 1988; i: 748-50.
- 7 Speight ANP, Lee DA, Hey EN: Under-diagnosis and under-treatment of asthma in childhood. *Br Med J* 1983; 286: 1253-6.
- 8 Horn CR, Cochrane GM: Management of asthma in general practice. *Respiratory Med* 1989; 83: 67-70.
- 9 Shee CD, Poole D, Cameron IR: Treatment of asthma in a general practice. *Postgrad Med J* 1984; 60: 336-7.
- 10 Wardman AG, Couke NJ, Binus V, Claydon AD: The use of prophylactic drugs for asthma in general practice. *J R Coll Physicians Lond* 1985; 19: 45-7.
- 11 Newhouse MT, Dolovich MB: Current concepts: Control of asthma by aerosols. *N Engl J Med* 1986; 315: 870-4.
- 12 British Thoracic Society, Research Unit of the Royal College of Physicians, King's Fund Centre, National Asthma Campaign. Guidelines for management of asthma in adults I- Chronic persistent asthma. *Br Med J* 1990; 301: 651-3.
- 13 Speizer FE, Doll R, Heaf P, Strang IB: Investigation into use of drugs preceding death from asthma. *Br Med J* 1968; 1: 339.
- 14 Horn CR: The treatment of asthma in general practice. In Cochrane GM.ed. *advances in the management of asthma Theracom* 1987.
- 15 Hay IFC, Higenbottom TW: Has the management of asthma improved? *Lancet* 1987; ii: 609-11.
- 16 Kumana CR, So SY, Li KY, Kou M: Pattern of anti asthmatic drug utilization in Hong Kong compared to other parts of the world. *Respiratory Med* 1989; 83: 343-8.

Quality Care with Warmth at Mount Elizabeth and East Shore Hospitals



Surgery with state-of-the-art equipment



Loving care for the little ones



Specially trained nurses provide quality rehabilitation care



Mount Elizabeth Hospital
3 Mount Elizabeth, Singapore 0922.
Tel: 737 2666 Fax: 737 1189 Telex: RS 25147 MEH



East Shore Hospital
321 Joo Chiat Place, Singapore 1542.
Tel: 344 7588 Fax: 345 4966 Telex: RS 38732 ESHSN

National Medical Enterprises Health Care Facilities