

ACUTE BRONCHIAL ASTHMA: A PATTERN OF ADMISSIONS

T K Lim

SYNOPSIS

One hundred episodes of acute bronchial asthma were studied in an Accidents and Emergencies Unit. There were 55 single episodes and 45 multiple episodes which were observed in 15 patients. Thirty-one patients were admitted out of which 7 patients (23%) were treated and discharged for acute asthma from the Unit within 24 hours before their eventual admission.

INTRODUCTION

The decision to admit a patient with acute severe bronchial asthma is usually made by the Emergency room doctor on clinical grounds and after a trial of therapy. The patient with recurrent asthma remains a familiar sight in emergency rooms despite recent advances in assessment and treatment of acute asthma.

The relapse rate is up to 30% and sudden death is a constant threat to a patient with inadequate therapy (1, 2)

In this study the pattern of admissions for bronchial asthma in an emergency unit was observed with particular emphasis on the patients with recurrent asthma.

MATERIALS AND METHODS

Data were collected over a two months period (February - March 1981) in an Accidents and Emergencies Unit (Alexandra Hospital). One hundred consecutive episodes of acute bronchial asthma in patients aged 16 to 40 years were studied prospectively.

All patients had long histories of cough, dyspnea and wheezing which were episodic in nature and reversible by bronchodilator therapy. Patients with chronic bronchitis, emphysema and underlying heart disease were excluded.

Treatment and admission decisions were made by the medical officers on duty on an individual basis.

The treatment modalities used were as follows:

1. Adrenaline, 0.3 - 0.6 ml of 1:1000 dilution over 10 - 20 minutes subcutaneous (may be repeated).
2. Aminophylline 250 - 500 mg over 15 minutes intravenous.
3. Hydrocortisone 200 mg intravenous bolus.
4. Nasal oxygen

These modalities were often used in combination.

The patients were reviewed at 30 or 45 minutes and either hospitalised or discharged. Some patients were admitted immediately if the asthma was judged to be of a critical severity.

The patients were studied with respect to the admission rate, the number of recurrences over the observation period and whether they were seen within 24 hours of being admitted to hospital.

The study was terminated when the patients were either admitted or discharged.

University Department of Medicine (II)
Singapore General Hospital
Outram Road
Singapore 0316

T K Lim, MBBS, M Med.
Lecturer

RESULTS

In Figure 1, of the 100 patients who were treated, 55 patients were seen for single episodes of acute asthma while the other 45 episodes occurred in 15 patients who were seen more than once during the period of study. Their admission rates were 33% and 29% respectively with an overall admission rate of 31%.

Seven out of the 31 patients (23%) who were eventually admitted were actually seen at the Emergency Unit within 24 hours prior to being admitted but they were treated and discharged instead.

No patients required intubation in the emergency room and none died.

	Number of Episodes of Asthma	Number of Admissions (%)
Single Episodes	55	18 (33)
Multiple Episodes*	45	13 (29)
Total	100	31 (31)

* A total of 15 patients were treated for more than one episode of acute asthma during the study period.

Figure 1:

The admission rate for acute bronchial asthma according to whether single or multiple episodes were treated during the study period.

DISCUSSION

No set therapeutic protocol was followed in this study and therefore some variability in the results must be expected. This study was intended to reflect the current practice in the treatment of bronchial asthma in the emergency room. Nevertheless, the treatment modalities most commonly used were subcutaneous adrenaline and intravenous aminophylline, they have been proven in clinical trials to be effective for acute severe asthma with the sympathomimetic agent the superior choice when given alone. (3, 4, 5).

Hydrocortisone was used the least in this study but it probably makes little difference in the admission rate since its maximal effect takes more than 6 hours but this assumption needs to be tested in a controlled situation. Because of its delayed onset of action hydrocortisone must be started promptly should the asthma not respond quickly to initial front line therapy (6).

The observed admission rate of 31% does not vary greatly from other studies (1, 4).

It had been shown repeatedly in careful studies that neither the doctors clinical judgement nor the patients symptomatology correlate closely with mechanical or gas exchange abnormalities in acute bronchial asthma (7, 8). A high predictive risk for relapse and the need for admission can only be obtained if the clinical symptoms and signs be organised into an index scoring system which must include at least the measurement of simple peak flows rates (1, 9). This problem is clearly shown in this study where almost one quarter (23%) of the patients who were admitted were actually treated at the Emergency Unit 24 hours before and discharged. This is an alarming figure and probably represents an underestimate of the problem since the patients might have been treated by general practitioners without returning to hospital or they might have been seen at more than 24 hour intervals before being admitted. The patient may suffer from symptoms, mechanical dysfunction and hypoxia for weeks if only suboptimal "emergency" treatment had been instituted for acute severe disease. There is clearly much room for improvement in our assessment and treatment of acute bronchial asthma in the emergency room.

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