

# An Audit on Hospital Management of Bronchial Asthma

Pages with reference to book, From 298 To 300

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## Abstract

Medical audit is a new concept in developing countries like Pakistan. We carried out this retrospective study on bronchial asthma. The purpose was to see if care given to patient with asthma meets the accepted international standard or not. During this audit several deficiencies were found. Documentation in notes about signs indicating severity of asthma was very poor. Peak flow recording in the notes was also very deficient. There was no documentation in notes whether inhalers technique of the patients has been checked or not. This audit shows that care given to asthma patients is far from satisfactory and we clearly need to improve in order to reach the accepted international standards (JPMA 45:298,1995).

## Introduction

Bronchial asthma is one of the commonest chronic disease world -wide. There is now ample evidence that prevalence, mortality and morbidity is on the rise<sup>1-3</sup>. It is also one of the common cause of admission to hospital. We carried out this medical audit to assess critically the quality of medical care given to patients with asthma. Our aim was to determine whether our patients evaluation and management measured up to the standard recommended guidelines<sup>4</sup>. In this way, if we do find deficiencies in the management compared to accepted standard then we could implement changes and suggest recommendations. This would serve to improve the delivery of care to asthma patients.

## Method

This is a retrospective, descriptive study conducted at the Aga Khan University Hospital, Karachi. The time period was between 1991 to 1993. Out of 593 adult patients who were seen with the primary diagnosis of bronchial asthma, 100 were selected randomly for our study taking every sixth patient as our case. All patients admitted with asthma as a secondary diagnosis and patients with COPD were excluded. The record files of the patients were reviewed in terms of age, sex, history, physical examination, investigations, management in the emergency, admission plan, discharge plan, PEF (Peak expiratory flow) at discharge and turn over for follow-up in the outpatient clinic.

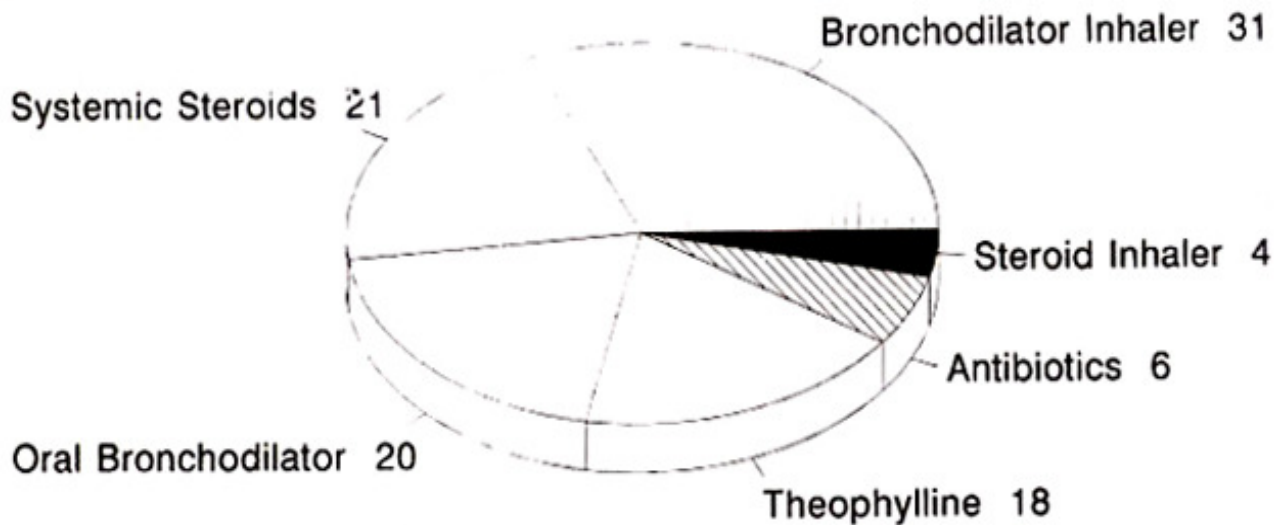
## Results

In this study, 37% were males and 63% females. Age range was from 15-74 years, 65% of all the cases were found to be over 40 years of age. Precipitating factors were not documented in 23 cases. It was documented in 77 cases. Among documented, 64 (83%) had a precipitating factor for their asthma attack. History of previous attacks were present in 92% of the cases. Family history of atopy was found in 39% of the cases. However, in 20% of the cases there was no documentation.

### a) Pre-admission medication

17% of the patients were on no medication while the rest 83% were using different medications at the time of presentation, 28 were taking one medication, 26 were on two, while 29 were on more than two medications. Percentage distribution of various medications used by patients before their presentation,

can be seen in figure.



**Figure. Percentage distribution of medication received by patients before reaching hospital.**

**b) Physical examination**

In all the cases vital signs were monitored (Table I) and chest examination was done. But in 41%, 40% and 8% there was no documentation of the use of accessory muscles, inability to speak and presence or absence of cyanosis respectively.

**Table. Documentation of clinical parameters on admission.**

Parameters	Documented (%)	Not documented (%)
<b>(A) Physical signs</b>		
Pulse rate	100	0
Respiratory rate	100	0
Inability to speak	60	40
Use of accessory muscles	59	41
Cyanosis	92	8
Wheeze	100	0
Pulsus paradoxus	27	73
<b>(B) Chest x-ray findings</b>	85	15
<b>(C) Blood gases</b>	73	27
<b>(D) Peak expiratory flow rate</b>		
i. In emergency room	23	77
ii. In the ward	10	90

Table I describes the presence or absence of signs that indicate severity of asthma. Pulsus paradoxus

was mentioned in only 27% of the cases.

#### **c) Investigations**

Chest x-ray was not done in 15% of the cases, in 29 cases (34.1%), it was found to be abnormal. Arterial blood gases were not sent in 27% of the cases. In those cases in which blood gases were sent, it was abnormal (PCO<sub>2</sub> >40 mmHg or P<sub>O<sub>2</sub></sub> <60 mmHg) in 46% of cases. In 77% of the cases who were seen in the emergency there was no documentation of PEFr.

#### **d) Management in the emergency**

Nebulizer was given to 99% of the cases either alone (10%) or in combination with other medications. Only one out of hundred patients required ventilation whereas 68% of patients were given parenteral aminophylline and 56% patients were given antibiotics.

#### **e) Management in the Ward**

On the whole, 69% of the patients received oral steroids. PEFr recording in the notes was only found in 10% of patients. None of the notes indicated whether inhaler technique has been checked or not. 88 patients were given outpatients appointment. Out of these only 55 (62%) turned up for follow-up. Out of 594 asthmatic patients, 5 died of acute asthma. They did not fall into our sampling by chance because we randomly selected every sixth case for the purpose of our study.

### **Discussion**

Medical audit is a relatively new concept in developing countries like Pakistan. A regular audit can greatly improve the quality of medical care. There is some evidence that beside other factors rising mortality in asthma is also due to deficiencies in its management<sup>5</sup>. This audit gives us some important results. The documentation of physical signs indicating the severity of the disease was very poor in the notes especially patients ability to speak (documented in 60%) and pulsus paradoxus which is a useful sign indicating severity of asthma was documented in only 27% of the cases. Our audit also highlighted problems with our peak flow criterion, for admission, discharge and with the recording in the notes of inhaler technique. PEFr was recorded in only 23% of the cases in emergency. There was also poor recording of PEFr in the inpatient notes. On discharge, only 10% had their peak flow measured during their hospital stay as evidenced by the inpatient hospital record. There was no mention in the notes whether inhaler technique of the patient has been checked or not. Looking at the medications, patients were using before coming to this hospital, it was surprising to see that inhaled steroids constituted only 4% of total medications. Although inhaled corticosteroids are of proven value and currently the most effective drug for prevention of asthma and improving the quality of life<sup>6-8</sup>. In general also bronchodilators inhalers were used only by 30% of patients. This might be due to the fear patients generally have about inhalers in Pakistan. Systemic steroids are of established value in acute severe asthma<sup>9</sup>. In our study, only 69% of patients were given systemic steroids. This indicates under-use of steroids, because if asthma attack is bad enough to require hospital admission, then systemic steroids should be given. As far as antibiotics are concerned, they are generally not considered as part of routine management of asthma exacerbation. They are indicated only when there is sign of pneumonia or patient has fever, leucocytosis or purulent sputum. In our study we felt that antibiotics were used rather excessively (56%). In some patients it was justified because they had evidence of bacterial infection but in many, its use was not justifiable. Viral infections are the most common precipitating factors for asthma and they do not require any antibiotics. The role of theophylline/aminophylline in treating exacerbation of asthma remains controversial<sup>10,11</sup>. In this study aminophylline was used in 68% of cases. British Thoracic Society guideline recommend use of aminophylline in only life threatening cases<sup>4</sup>. Intravenous aminophylline is not recommended in the Emergency Department within first 4 hours of treatment however, it may have a role in the treatment of patients hospitalized with severe acute asthma. In conclusion management of bronchial asthma, both in emergency room, as well as, in

medical wards was far from perfect. We clearly need to improve our overall performance in the management of this condition. Regular audit has shown to improve the quality of medical care<sup>12</sup>. We recommend more such audits in further. Following recommendations can be made from this study:

1. Documentation of physical signs indicating severity of asthma needs improvement.
  2. Peak expiratory flow rate should be measured and documented in every patient with asthma.
  3. Patients should be encouraged to use inhaled steroids as a prophylactic agent British thoracic society recommends that any patient who gets symptoms of asthma daily should be put on regular inhaled steroids.
  4. Patients should have a regular check-up on inhaler's technique and it should be documented in the notes.
  5. Intravenous aminophylline should only be used when patients have feature of life threatening asthma or they failed to respond to B agonist nebulizer and steroids.
  6. Indiscriminate use of antibiotics in the management of asthma attacks should be avoided.
- Finally, several studies have shown that management of asthma patients admitted under specialist chest physicians are much better compared to patients admitted under general physicians<sup>5,13-15</sup>. Therefore, every attempt should be made to make specialist chest units in all hospitals where patients with asthma can be looked after and cared by physician who is interested in bronchial asthma. The intensive management of asthma patients in respiratory units can prevent unnecessary morbidity and mortality.

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