

# ASTHMA – WHY TREAT IT?

Dr Matthew Ng Joo Ming

## Rising Incidence

The incidence of asthma is on the rise in Singapore. Each year, many children are being labelled. However, it is also important to recognize that not all who wheeze are asthmatic and not all asthmatics wheeze. Wheezing may be caused by respiratory tract infection, rhinitis, sinusitis or vocal cord dysfunction. It is also important to exclude life-threatening conditions such as foreign body aspiration and heart disease. Therefore, a good diagnostic understanding of wheezing is important. From the standpoint of the patient and family, education and dispelling the myths about the disease is very important. Asthma can be relieved and with adequate inflammatory therapy for those who have persistent asthma, the quality of life and freedom from the symptoms can be achieved.

A recent study by the Asthma Association of Singapore has shown that the disease is a major cause of absence from classes and physical education. At least one or two asthmatic children are present in each class. If you extrapolate that by the number of schools and classes in Singapore, the numbers can be overwhelming.

Asthma is defined as a chronic inflammatory disease. The resultant inflammation results in the release of chemicals such as histamines, leukotrienes, prostaglandins and thromboxanes, resulting in vasodilatation, oedema and bronchoconstriction. Leukotrienes have recently been identified as the key culprit in asthma. It is a thousand times more powerful than histamines in mediating inflammatory response. In the later phase of asthma, cytokines are released. This results in chronic inflammation and further airway narrowing.

## High risk asthma

Asthma is a reversible and preventable disease, yet why is there still death attributed to the disease? We now know enough of the at-risk factors. Of those who die from the illness, there are well-known characteristics that are common. These patients usually have:

1. An admission to hospital in the past 12 months
2. A history of admission to the Intensive Care Unit
3. Episodes of nocturnal asthma
4. Denial that they have the disease
5. Do not have the insight to the illness
6. Poor compliance to treatment
7. Do not adhere to treatment program.

Such patients have high risk asthma. It is important to remember that asthma is a chronic condition and treatment

is a continuing process. It is not enough to just treat the acute exacerbations. Patient with asthma should be followed-up regularly to review their condition, medication and check compliance. Patients with high risk asthma should also be seen by a specialist even though they appear to respond to intensive treatment for acute asthma in the clinic.

## Stepwise approach

Asthmatics are classified as mild, moderate and severe depending on the frequency of their symptoms. The stepwise approach in asthma management provides a general guideline to assist clinical decision making.

## Exacerbations

The patient who turns up unscheduled to your clinic with an exacerbation is likely to have severe asthma. The reason being that the mild asthmatics who can be relieved by the MDI usually do not present to the doctor. In such situations, it is likely the patient would have used his medication repeatedly and could not get relief from the medications. Hence, for practical purposes, all unscheduled patients with exacerbation of asthma should be treated as severe asthma.

Such patients should be treated with bronchodilator drugs to quickly relieve the severe airways obstruction. The most effective treatment is short acting beta agonists by inhalation. The usual treatment in Singapore is 5 mg salbutamol in saline solution delivered via a hand held nebulizer and repeated 2-4 times. This regimen will control acute asthma symptoms in about 2/3 of cases. Randomized studies have shown that adding repeated doses of an anti-cholinergic agent (e.g 5 mcg ipratropium bromide) to this regimen will improve pulmonary function faster in more severe asthma and also reduce the need for hospital admissions by 30% to 60% and number of patients needed to treat to prevent one admission is 5 to 11. Thus, the use of repeat nebulizations of a combination of salbutamol with ipratropium bromide for all patients except the most trivial cases of acute asthma is advocated.

A course of oral corticosteroids will speed up the resolution of airway inflammation and prevent short-term relapse. It should be administered immediately and prescribed to ALL patients with an acute asthma exacerbation. A recent case controlled study from Australia concluded that oral steroids given for acute attacks will reduce the risk of death by 90%. A course of oral prednisolone of 30-40mg per day (at ~ 4 PM) for 7 to 10 days with no "tail" is recommended. A short "burst" of oral prednisolone which is stopped promptly is associated with almost no side effects and need not be "covered" with any antibiotics or anti-ulcer prophylaxis. There is no evidence of increased risk of either infections or gastric problems in this setting. The only concern is poor sugar control among diabetics. Patients who are already taking theophyllines

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MATTHEW NG JOO MING, Honorary Editor, College of Family Physicians Singapore

should be allowed to continue, but no additional doses are recommended. Similarly, mucolytic agents and anti-histamines do not help the resolution of acute asthma.

Patients who appear critically ill and in near exhaustion from respiratory distress have near fatal asthma and should not be treated primarily in the clinic but should be transferred to the emergency department immediately. Patients who do not respond promptly to or deteriorate despite the first line treatment described above have status asthmaticus and should also be referred to hospital. While waiting for the ambulance, patients with near fatal asthma and status asthmaticus should be treated with nebulized combination bronchodilator drug therapy plus oral prednisolone as described above. In addition, a parental administration of beta-adrenergic medication may be warranted in patients with critically airflow obstruction who may not be able to inhale the aerosolized medication adequately. Repeat doses of subcutaneous adrenaline (0.5 ml of 1: 1,000) may be considered in this setting at 15-20 minute intervals. Supplementary oxygen would also be indicated if available. If the PEFR after treatment is to be used as criteria, most guidelines recommend a PEFR level of 70% -80% of predicted or personal best before it is safe to discharge patients from the clinic.

### Dispelling myths

Dispelling the myths is another important aspect of asthma management. How often do you encounter such reasonings during consultation?

1. I do not want to use the inhaler, I do not want to get addicted to it
2. I have mild asthma, I do not get the attack frequently.

Can I not see you that often? Can I buy the inhaler over the counter?

3. I do not want to use the steroid inhaler as it can cause bone loss and stunt the growth of my children
4. I am pregnant, I do not want the medication to harm my baby
5. Smoking does not aggravate my asthma.

### Goals

The goals of asthma treatment are:

1. Prevent chronic and troublesome symptoms such as cough, breathlessness at night, early morning and after exertion.
2. Maintain normal pulmonary function
3. Maintain normal activity level
4. Prevent recurrent exacerbations and minimize the needs for hospitalization and emergency treatment.
5. Provide adequate treatment with medication with little or no side effects
6. Meets the ideas, concerns and expectations of patient and family in the care of their illness.

### Our role

As Family Physicians, our role in dispelling the myths, asthma education, identification of triggers and coordination of care is crucial. This will decrease the disease burden in the community and prevent premature deaths associated with the illness. Specific medication plans should be tailored to the needs and circumstances of individual patients. Referral to the respiratory physician for consultation may be required if there is difficulty achieving or maintaining control of asthma.