UNIT NO. 1

EVIDENCE BASED GUIDELINES FOR ASTHMA MANAGEMENT

Dr John Abisheganaden

ABSTRACT

Asthma guidelines form a key part of asthma management. They provide us with an invaluable aid to best practice. Such guidelines have been developed globally and nationally. Recent systematic analysis has showed that patient education and optimising drug treatment, consistent with what is recommended in most guidelines can have major sustained beneficial effects in patients. The use of written asthma action plans will encourage patient's independence and confidence in managing the condition, and plays an important role in the management of asthma. This article summarises the key recommendations that would have major beneficial effects in asthma management.

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ASTHMA SELF-MANAGEMENT

Asthma self-management education plays an important role in the management of asthma. The concept of using a guided self-management written Asthma Action Plan (AAP) arose as clinicians realised that delays in recognising asthma exacerbations and initiating appropriate therapy are important factors contributing to asthma morbidity and mortality. An AAP guides asthma patients to make changes to their treatment in response to changes in the severity of their asthma, in accordance with predetermined guidelines.

The main aim of the AAP is to abort exacerbations by rapid step up of both reliever and preventor medication. It also prompts the patient to seek urgent hospital treatment in instances of severe exacerbations and/or failure of self-medication. The use of asthma action plans will lead to reduction in hospital admissions, emergency room visits, unscheduled visits to the doctor for asthma, days off work, nocturnal wakening and in the risk of death from asthma[1].

EFFICACY OF INHALED CORTICOSTEROIDS

Inhaled corticosteroids (ICS) are known to reduce the risk of asthma exacerbations and of asthma fatalities[2-4]. By contrast, overuse of short-acting inhaled beta2-agonists is associated with increased risks. Patients with persistent asthma (defined as needing relief medication once or more times per week) should be given inhaled corticosteroids to improve asthma control and reduce mortality.

JOHN ABISHEGANADEN, Senior Consultant Respiratory Physician, Tan Tock Seng Hospital

All studies of the efficacy of ICS, in which exacerbations have been studied, are consistent in showing a marked beneficial effect of even low doses of ICS in reducing the risks of both mild and severe exacerbations. An increased dose of ICS at the onset of exacerbations can reduce the need for systemic corticosteroids, although this may require a four-fold increase in dose. A rescue course of prednisolone may be needed for acute exacerbations with stepped up treatment. In asthma, ICS substantially improves morbidity and mortality, and this is the basis of pharmacotherapy for disease control.

EFFICACY OF COMBINATION THERAPY

The addition of Long-Acting Beta2-Agonists (LABA) to ICS therapy can improve asthma symptoms and reduce exacerbations[5]. The addition of LABA may also have an ICS-sparing effect and permit a reduction in ICS maintenance dose. Adult asthmatics with symptoms not controlled with 400-800 mcg of inhaled steroids per day should be given a long-acting beta2-agonist. The addition of long-acting beta2-agonists results in better asthma control and reduction in severe exacerbations when compared with doubling the dose of inhaled steroids.

The use of combination drugs (inhaled steroid + long-acting beta2-agonist) may be more effective than using the two drugs separately and also improves compliance. Examples of combinations are Seretide Accuhaler/Evohaler and Symbicort Turbuhaler.

SHORT-ACTING BETA2-AGONISTS

Short-acting inhaled beta2-agonists are useful for relief of acute symptoms. It can also be used prior to exercise for exercise-induced bronchospasm. In patients with mild intermittent asthma, short-acting inhaled beta2-agonists are recommended as quick-relief medication for treating symptoms as needed (prn usage). There is a dose-effect relationship between excessive use of short-acting beta2-agonists (>2 units of metered dose inhalers per month) and risk of asthma death.

OTHER THERAPIES

Antibiotics, antihistamines, mucolytics and anti-tussives have no special role in asthma therapy. The cysteinyl leukotriene receptor antagonists have been shown to reduce the rate of asthma exacerbations[6]. However, direct comparisons with ICS alone indicate that this treatment option is less effective than ICS in improving overall asthma control, although the effect on reducing the risk of asthma exacerbations may be similar[7].

ASTHMA IN PREGNANCY

Asthma has been reported to affect between 4% to 8% of pregnant women, making it potentially the most common serious medical problem to complicate pregnancy. It is often under-recognised and sub-optimally treated. Maternal asthma increases the risk of perinatal mortality, preeclampsia, preterm birth, and low birth weight infants. More severe asthma is associated with increased risks, while better-controlled asthma is associated with decreased risks.

The course of asthma in pregnancy may be variable. It improves, remains stable, or worsens in similar proportions of women. It is safer for pregnant women with asthma to be treated with asthma medications than for them to have asthma symptoms and exacerbations. The goal of treatment for the pregnant asthmatic patient is to provide optimal therapy to maintain control of asthma for maternal health and quality of life, as well as for normal foetal maturation.

The recommendations for pharmacologic treatment of asthma during pregnancy are available from the US National Asthma Education and Prevention Program Working Group Report on Managing Asthma during Pregnancy (Update 2004). The full reference/report is available at http://www.nhlbi.nih.gov/health/prof/lung/asthma/astpreg.htm. It follows the GINA/WHO stepwise classification and approach to managing asthma. It also recommends that asthmatic patients who are pregnant should be managed with inhalation therapy, which is safe and effective in pregnancy.

GINA 2006 ASTHMA GUIDELINES

With the publication of newer data, the focus of current guidelines will move away from classifying asthma severity, and move towards achieving and measuring control of asthma. The new Global Initiative for Asthma (GINA) 2006 guidelines will adopt this approach, with three targets or action steps:

- Assessing asthma control
- Treating to achieve control
- Monitoring to maintain control

This simplified management approach is based on control and if the asthma is controlled, this should be maintained at the lowest controlling step of treatment. If asthma is partially controlled or uncontrolled, a step up of treatment should be considered to gain control.

There are several assessment tools that have been developed for assessing asthma control. These include the 30-second Asthma Test, Rules of Two, Royal College of Physicians questionnaire, Asthma Control Questionnaire (ACQ), and the Asthma Control Test (ACT). Both the ACQ and the ACT have been validated[8,9]. An ACT score of 25 indicates total control. 19 or less indicates uncontrolled asthma, and changes in management may be needed to achieve optimal control. A score of 14 or less indicates that the patient's asthma is out of control and referral to a specialist may be appropriate.

GINA guidelines state that the aim of asthma management should be control of the disease. GINA defines control of asthma as[10]:

- Minimal (ideally no) chronic symptoms, including nocturnal symptoms
- Minimal (infrequent) episodes
- No emergency visits
- Minimal need for prn beta2-agonist use
- No limitations on activities, including exercise
- Peak Expiratory Flow (PEF) variability <20%
- (Near) Normal PEF
- Minimal (or no) adverse effects from medication

The new guidelines, which will be communicated towards the end of 2006, will include the definition of asthma control as controlled, partly controlled or uncontrolled. According to the patient's level of control, treatment can be stepped up or down.

CONCLUSIONS

In summary, evidence based asthma guidelines form a key part of asthma management. This review provides the current evidence for self-management and written action plan use, corticosteroid efficacy, the role of LABA/ICS combination therapy and the role of short-acting beta2-agonists and other therapies.

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LEARNING POINTS

- **Asthma control can be achieved by self-management using a written asthma action plan.**
- **Patients with persistent asthma (defined as needing relief medication once or more times per week) should be given inhaled corticosteroids to improve asthma control and reduce mortality.**
- **The addition of long-acting beta2-agonists results in better asthma control, and reduction in severe exacerbations when compared with doubling the dose of inhaled steroids.**
- **Avoid excessive use of short-acting beta2-agonists due to association with risk of asthma death.**
- **Asthmatic patients who are pregnant should be managed with inhalational therapy, which is safe and effective in pregnancy.**
- **The new GINA 2006 guidelines include three new action steps: assessing asthma control, treating to achieve control and monitoring to maintain control.**