ARTICLE

Rational prescribing for ongoing management of asthma in adults

SUMMARY

Although asthma is one of the most common chronic conditions in Australia, current treatment often fails to reflect clinical practice guidelines.

Improving the patient's management first requires an assessment of how well their asthma is controlled.

Factors such as poor inhaler technique and poor adherence may contribute to poor asthma control. These need to be addressed before adjusting the patient's drug prescription.

Simple processes for step-up and step-down adjustments of treatment are used to maintain good control while minimising adverse effects.

There should be an emphasis on shared decision-making to improve patient understanding and acceptance of treatment.

Introduction

Deaths from asthma have dramatically fallen in recent years, so asthma is now often perceived as a commonplace and rarely serious condition. However, treatment of asthma in Australia is not optimal. The majority of preventer prescriptions for asthma in adults (≥15 years) are for the highest potency combination of an inhaled corticosteroid and long-acting beta$_2$ agonist rather than a low-dose inhaled corticosteroid (≤400 microgram/day budesonide or equivalent) which alone should be sufficient for most patients.[1,2] In addition, more than half of the people aged 15–34 years are dispensed these medications only once in a year. Most patients use their inhalers incorrectly, and only 22% of patients have a written asthma action plan.[1]

Clinical outcomes and costs could be substantially improved if an evidence-based approach was taken to tailoring an individual's asthma assessment and management.

Identifying the need for treatment – how to assess asthma control

Current asthma guidelines are based on assessment of the patient's level of asthma control. This is the extent to which the effects of asthma have been reduced or removed by treatment.[3] There are two important components.

The first component is the level of **current control**. This is determined by the frequency of symptoms, use of reliever inhalers and activity limitation over the last month, and spirometry. Simple assessment tools include the Asthma Score*, and the Global Initiative for Asthma (GINA) categorisation (controlled, partly controlled or uncontrolled).[2] The level of control should be recorded at each visit to facilitate comparison. Sub-optimal current control is indicated by an Asthma Score <20, symptoms or reliever use three or more times per week, or any night waking from asthma.

The second component of asthma control is the patient's **future risk** of adverse outcomes, particularly exacerbations and adverse drug reactions. This may appear unnecessary, since patients with well-controlled symptoms generally have few exacerbations, and uncontrolled symptoms should prompt treatment review. However, additional risk factors for patients with few current symptoms are one or more exacerbations in the past year, any intensive care unit admission for asthma, low lung function, smoking, and long-term use of high-dose inhaled corticosteroids.[3]

Asthma control is the extent to which the effects of asthma have been reduced or removed by treatment

Why focus on asthma control rather than severity?

In many chronic diseases, treatment is based on the initial disease severity, an intrinsic and relatively static feature. Previously, asthma 'severity' was based on the initial clinical features. However, patients with similar symptoms had widely differing responses to treatment. Asthma is now perceived as a syndrome with several underlying pathophysiological processes which are variably modified by inhaled corticosteroid treatment.

Asthma severity is now defined by the level of treatment required to achieve best asthma control.[3] 'Mild asthma' can be well controlled on low-dose inhaled corticosteroids, but 'severe asthma' requires high-dose combination therapy or is uncontrolled despite such treatment.

* www.asthmascore.com.au

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When asthma is not well controlled

Once or twice a year each patient's asthma control and risk factors should be reviewed, and treatment adjusted if necessary. Patients may also make short-term adjustments for worsening asthma in accordance with their written action plan.

In general, clinical guidelines recommend that patients experiencing symptoms three or more times a week or with one or more exacerbations per year should commence regular low-dose inhaled corticosteroids, or step up their existing preventer treatment. However, before any step-up, some important factors should be considered.

Are the symptoms due to asthma?

Asthma symptoms are non-specific, and new symptoms may be due to other conditions such as rhinitis, cardiac failure or vocal cord dysfunction.[4]

Is inhaler technique correct?

Most patients and health professionals have incorrect inhaler technique, but are unaware of this.[5] The only way to identify incorrect technique is to watch the patient using their inhaler.*

Most patients and health professionals have incorrect inhaler technique, but are unaware of this

The inhaler device should not be changed simply because the patient's technique is incorrect. Education about inhaler technique takes only 2–3 minutes, but is often very effective in improving asthma control[6] and is valued by patients. A physical demonstration, either in person or by video, is essential to improve inhaler technique.[7] Checklists and videos are available on the National Asthma Council website.[5,8]

Question adherence

Patients are often reluctant to admit to poor adherence. Permissive wording can assist, for example, 'Would you usually take your inhaler once or twice a week, or less, or more?'. Poor adherence should not be surprising in asthma, with intermittent symptoms that usually respond rapidly to a reliever inhaler. In Australia, these medications are cheaper and more readily available than preventer medications, and patients often perceive them as safer.

Poor adherence may be classified as either intentional – where the patient makes a reasoned choice that the drug's perceived risks outweigh its perceived benefits – or unintentional, due to forgetfulness[9] or cost[10].

There are few easy solutions to poor adherence. For unintentional poor adherence, suggest an alarm, placing the inhaler next to the toothbrush, or simplifying the medication regimen. Cost may be an issue, even for patients with a concession card.[10] In this situation, consider the relative cost to the patient of different preventer options, and aim for regular daily use even if at a low dose. For intentional poor adherence, a discussion about perceived risks and benefits can identify key barriers. An agreed dose can be negotiated using shared decision-making and goal-setting strategies, with little increase in consultation times.

Other factors?

Before increasing treatment, consider if poor control is due to rhinosinusitis, smoking, occupational exposure, allergens or drugs such as beta blockers. For many triggers, reducing exposure is beneficial, but evidence for house dust mite avoidance strategies is limited. Breathing exercises can help to reduce anxiety-related symptoms or reliever overuse, but they do not improve lung function or airway inflammation.[11]

Consider a therapeutic trial of step-up treatment

Consider a dose increase or add-on therapy only after dealing with other factors contributing to poor control. Handle any change as a therapeutic trial, and document the patient's level of asthma control before and after the change. Set a review date, for example 2–3 months, and agree on criteria for assessing the patient's response.[3]

Step-up options

For patients whose asthma is uncontrolled on low-dose inhaled corticosteroids, two different step-up regimens are available. One option is a conventional regimen of low-dose inhaled corticosteroid with a long-acting $beta_2$ agonist, with a short-acting $beta_2$ agonist for symptom relief. Currently, the Pharmaceutical Benefits Scheme requires that patients should first be stabilised on separate inhalers, rather than a combination inhaler. However, this requires an additional visit and may increase the chance that patients will only take the long-acting $beta_2$ agonist.

The other step-up is a combination of low-dose budesonide and eformoterol (100/6 or 200/6), used as both maintenance and reliever therapy. This is possible because budesonide/eformoterol has a similar onset of action to salbutamol. With this regimen, levels of asthma control are similar and the risk of exacerbations is reduced or similar, versus higher-dose inhaled corticosteroid or inhaled corticosteroid/long-acting $beta_2$ agonist.[12] This apparent paradox is

* See 'Common problems with inhaler devices' with this article online at www.australianprescriber.com/magazine/35/2/43/6

probably explained by the more timely, albeit small, increase in anti-inflammatory and bronchodilator dose as soon as symptoms worsen. This regimen reduces the risk of adverse effects, but is not suitable for patients who habitually overuse short-acting $beta_2$ agonists, who poorly perceive airway obstruction, or who would be confused by a regimen change.

If further step-up treatment is required, moderate or high-dose combination therapy can be used, but long-term adverse effects should be considered. A few patients remain uncontrolled and should be referred for consideration of other add-on therapy.

When asthma is well controlled

Once symptoms are stable for three months and exacerbations are infrequent, step-down should be actively initiated in order to minimise the risk of adverse effects, such as osteoporosis and cataract. Clinicians may be concerned about destabilising previously well patients, but this may result in over-prescribing, and reinforce patient concerns about high doses. It is helpful to explain that both the overall dose and risk of exacerbations can be lowered by gradually decreasing to a low, regular, daily dose, rather than by stopping and starting treatment.

How to step down

Maintenance treatment can be gradually reduced at intervals of around two months, with inhaled corticosteroid dose reduced by 25–50% each time. Each change should be treated as a therapeutic trial, with the level of asthma control documented. There are few studies on which to base recommendations, but it would be reasonable to check lung function after the dose of inhaled corticosteroid has been reduced by 50%, or more frequently for patients who are anxious or at greater risk. Patients should be advised to return to the previous dose or medication and contact the doctor if their asthma is consistently worse after a step-down.

For patients taking conventional fixed-dose combination therapy, step down through the available formulations. This reduces the inhaled corticosteroid dose by around 50% each time, mostly without changing the dose of long-acting $beta_2$ agonist. For patients taking the budesonide/eformoterol combination as maintenance and reliever therapy, the maintenance dose can be reduced, with the as-needed doses providing an immediate safety net if the patient's control deteriorates.

Once the lowest dose of combination therapy has been reached, options are to shift to once-daily dosing, which can be an effective option when the inhaled corticosteroid dose is ≤400 microgram daily, or to withdraw the long-acting $beta_2$ agonist and treat with inhaled corticosteroid alone.[13]

Conclusion

Stepping-up and stepping-down treatment for asthma is not substantially different from the treatment principles for hypertension or diabetes. Assess the patient's status, prescribe an appropriate starting medication, ensure that the patient knows how and when to take it, review the patient's response, then monitor and readjust the treatment over subsequent visits. Inhaler technique and adherence should be assessed at every visit. ◅

Associate Professor Reddel has served on advisory boards for AstraZeneca, GlaxoSmithKline and Novartis, has provided consulting for Biota, GlaxoSmithKline and Novartis. She has received honoraria from AstraZeneca, Boehringer Ingelheim and GlaxoSmithKline for educational presentations, is chairing a joint data monitoring committee for AstraZeneca, GlaxoSmithKline, Merck and Novartis, and has received research funding from AstraZeneca and GlaxoSmithKline.

Note: The June issue will feature an article on written asthma plans.

Q:

SELF-TEST QUESTIONS

True or false?

1. The severity of a patient's asthma is determined by their symptoms and lung function at the time of diagnosis.
2. Patients with newly diagnosed asthma should start treatment with a combination inhaler containing a corticosteroid and a long-acting $beta_2$ agonist.

Answers on page 71

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Your questions to the PBAC

Methotrexate

We would like to suggest a simple measure to reduce the risk of potentially life-threatening adverse effects associated with unintentional overdose of methotrexate. This problem has been highlighted in the past, with recommendations for clear labelling and patient counselling to minimise the risk.[1] Labels should name the specific weekday for dosing. The instruction to 'take as directed' is unacceptable.

Despite these measures, we continue to see patients suffering severe adverse effects because they have taken methotrexate daily instead of weekly as prescribed. These patients are often elderly and particularly susceptible to poor outcomes.

Maximum quantities of methotrexate allowed on the Pharmaceutical Benefits Scheme (PBS) are 30 and 15, for 2.5 mg and 10 mg tablets respectively. For a patient on a weekly dose of 15 mg, up to 15 weeks treatment can be dispensed at one time. Consequently, inappropriate daily use can continue for two weeks before a repeat is requested and there is an opportunity to spot the error.

If prescribers restrict the quantity of methotrexate ordered to a maximum of four weeks supply, as with most other PBS items, unintentional overdose could effectively be limited to just four days before repeat supply would have to be obtained. If pharmacists are alert for early requests for repeat supplies, this simple measure would greatly increase the chances of the patient error being noticed by a health professional, and potentially reduce the adverse consequences of such an error.

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The Pharmaceutical Benefits Advisory Committee responds:

Although a maximum quantity is set out in the Schedule of Pharmaceutical Benefits, there is flexibility to vary the quantity prescribed for those patients taking doses that are higher or lower than usual. It is the responsibility of the doctor to ensure that individual patients are prescribed the quantity which is most suitable for their needs.

If a prescriber believes a lesser quantity is sufficient for the patient's needs, then a quantity less than the listed maximum quantity may be prescribed and dispensed. Under the PBS, an allowance is paid to pharmacists for dispensing a lesser quantity from a standard pack.

At its March 2008 meeting, the Pharmaceutical Benefits Advisory Committee (PBAC) recommended the unrestricted listing of methotrexate 10 mg, in a smaller 15 tablet pack size. As a consequence, the PBAC also recommended a restricted benefit listing for the methotrexate 10 mg, 50 tablet pack size, limiting use to patients requiring a dose of more than 20 mg per week. The unrestricted benefit listing for methotrexate 2.5 mg remained unchanged.