Refining the use of inhaled steroids in asthma

Jon Miles

Inhaled corticosteroids remain the most significant aspect of asthma therapy. An increasing number of drugs, devices and formulations are available to health-care professionals. This article aims to address the goals of inhaled steroid therapy and asks how well the available options meet these goals.

What dose of inhaled steroid? Which treatment regimen? Which inhaled steroid? Which inhaler device? How often to review treatment? These are just a few of the questions that challenge health-care workers in asthma management. Inhaled steroids are the accepted mainstay of therapy for chronic asthma, and there is now considerable experience of their efficacy and safety. There is, however, wide variation in prescribing within the framework of the 1997 British Thoracic Society (BTS) Guidelines on Asthma Management (BTS, 1997; Office for National Statistics, 1999), and significant over-treatment with high-dose inhaled steroids. It is time to learn from our collective experience and refine the use of inhaled steroids.

GOALS OF STEROID TREATMENT

The first aim in asthma treatment should always be to rapidly gain symptom control, and then to maintain this on the lowest possible dose of drug or drug combination, thereby maximizing therapeutic benefits and minimizing the risk of any side-effects.

Inhaled steroids often exhibit so-called 'flat' dose–response curves, in which efficacy plateaus at relatively low doses (from 1000 mg daily). The dose at which the plateau occurs depends upon a number of factors, including the severity of the asthma, the sensitivity of the individual patient and the inhaled steroid molecule (Barnes, 1997).

While clinical efficacy plateaus with dose, the risk of systemic side-effects, such as skin bruising and osteoporosis, does not. As a result, British guidelines on asthma management recommend that patients' treatment is regularly reviewed (every 3–6 months) and a stepwise reduction in steroid dose made in patients with good symptom control (BTS, 1997). It is suggested that the dose may be reduced by 25–50% at each review, although no randomized controlled data currently exist to support this advice, and are awaited.

Unfortunately, when the patient is well and their asthma symptoms are under control there is often no prompt to reduce medication, and at present step-down is frequently not implemented (Hart and Davidson, 1999; Ayres, 1999). As a result, a significant number of patients are being treated with higher doses of inhaled steroid than needed for prolonged periods. The burden of stepping down is likely to be shouldered by primary care workers, as those patients with 'stable' or 'controlled' asthma are likely to be discharged from outpatient clinics.

An equally important treatment decision concerns patients whose asthma is not controlled on the dose of steroid initially prescribed. In such cases, it is important to step-up treatment to achieve good symptom control. A number of options are available:

- Increase the dose of the prescribed inhaled steroid
- Change the delivery system or the formulation of the inhaled steroid
- Change the inhaled steroid to a more potent molecule (thereby increasing efficacy without increasing dose)
- Initiate combination therapy, starting with the addition of a long-acting beta-agonist, leukotriene receptor antagonist or theophylline preparation.

The most appropriate course of action should be assessed for each patient, who should then be reviewed regularly until consistent control is achieved.

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LEARNING FROM EXPERIENCE

So how can we learn from our experience of the clinical use of inhaled steroids and how can we rationalize prescribing for both clinical and health economic benefit?

Inhaled steroids are currently the 'gold standard' treatment for the inflammatory component of asthma, and this is supported by a plethora of evidence. Given the evidence of efficacy *vs* safety of inhaled steroids at higher doses, it seems clear that a 'less is more' approach may offer clinical advantage. This approach involves achieving rapid symptom control with a short treatment course of high-dose steroid, after which the dose is titrated down to the lowest effective level. Moreover, in terms of optimizing symptom control, it may be prudent to prescribe a steroid with a high therapeutic index (the ratio of clinical efficacy to unwanted side-effects), and potent new steroids, such as mometasone furoate (Bernstein et al, 1999) and fluticasone propionate (Johnson, 1998), improve the choice of drugs available in this respect.

In the current environment of financial constraint, an additional advantage of this approach to prescribing is its cost-effectiveness: there is a significant link between good symptom control and long-term health costs. Patients with stable asthma have less time off work, and consume less health-care resource because they have fewer acute exacerbations. Equally, avoiding over-treatment with high-dose steroids will reduce drug costs with no therapeutic loss.

However, it appears that, despite being recommended as best clinical practice in the current BTS asthma management guidelines, step-down of inhaled steroid treatment does not occur as widely as it should. This needs to be taken into account by secondary care teams; working together, asthma management teams across primary and secondary care need to improve adherence to the BTS asthma management guidelines and increase both optimization and standardization of steroid treatment for their communities.

THE ISSUE OF COMPLIANCE

Poor compliance with treatment is a well-recognized issue in asthma management. It has been shown that only about 50% of patients take their medication as prescribed (National Asthma Campaign, 1996). Treatment compliance and optimal steroid prescribing are inextricably linked: failure to take steroids correctly leads to poor symptom control, increased doses of steroids and increased potential for side-effects. Another important aspect of compliance with steroid therapy centres on patients' attitudes to their medication. Statistics have revealed that patients still view their 'reliever' not their 'preventer' as their most important inhaler, because of the lack of perceived benefit of their 'preventer' (Cochrane and Horn, 1991).

So how can compliance be improved? While detailed discussion on compliance is outside the scope of this article, experience indicates that the following factors are key in improving adherence to treatment:

- Good two-way patient–doctor communication that emphasizes the importance of the inhaled steroid for the proper control of the patient's asthma
- A simple treatment regimen (with the minimum number of daily doses)
- An easy to learn and use inhaler device.

INHALER IMPACT

The type of inhaler used in steroid delivery can be a key determinant in how successful treatment is for an individual patient. Clearly, the choice of inhaler is significantly affected by the steroid it contains and its formulation. However, other factors are also important. These include dose-to-dose consistency of the inhaler and its effectiveness across a range of inspiratory flow rates, both of which affect the efficiency of drug delivery by the device.

The aesthetic features of a device such as size and looks can influence whether the device is liked by patients, and this can have a significant impact on compliance. In addition to this, safety features such as a dose counter and lockout mechanisms have the potential to further improve patient compliance. Moreover, inhalers should be easy to use and easy to teach, thereby satisfying patients' preference for simple, convenient devices.

KEY POINTS

- Inhaled steroid treatment should aim to provide optimal asthma symptom control at minimum dose.
- Patients should be reviewed on a regular basis and their dose of inhaled steroid either increased to improve symptom control, or stepped down where appropriate.
- Improved communication between primary and secondary care teams will facilitate rational steroid prescribing.
- The choice of both the inhaled steroid and device are important — an improved efficacy/safety ratio and patient-friendly device can improve treatment outcomes.

CONCLUSIONS

Careful review of national prescribing trends of inhaled steroids, and improved communication between primary and secondary care teams will create a framework within which steroid prescribing can be refined and improved. The introduction of new steroids and patient-friendly inhaler devices continues to improve our range of therapeutic options with which to manage the disease. It is time to optimize asthma treatment by learning from past experience, thus increasing the number of well-controlled patients on optimal treatment regimens. HM

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