

Inhaled corticosteroids were safely stepped down in chronic, stable asthma

Hawkins G, McMahon AD, Twaddle S, et al. **Stepping down inhaled corticosteroids in asthma: randomised controlled trial.** *BMJ.* 2003;326:1115-20.

QUESTION

In patients with chronic, stable asthma, can the dosage of inhaled corticosteroids be safely stepped down?

DESIGN

Randomized (allocation concealed*), blinded (clinicians, patients, {data collectors, outcome assessors, data analysts, and monitoring committee}†),* controlled trial with 12-month follow-up at 3-month intervals.

SETTING

General practices in western and central Scotland, UK.

PATIENTS

259 patients \geq 18 years of age (mean age 54 y, 58% women), who had been diagnosed with asthma for \geq 1 year and were receiving \geq 800 μ g daily of inhaled beclomethasone dipropionate (or equivalent dosage of budesonide or fluticasone propionate). Exclusion criteria were need for oral corticosteroids, general practice visit, or hospital visit for asthma in the past 2 months; inability to use a peak flow meter; treatment with immunosuppressive drugs; serious illness; alcohol, drug, or substance abuse; or pregnancy. 1-year follow-up was 82%; all patients were included in the analysis for the primary outcome.

INTERVENTION

Patients were allocated to a step-down group ($n = 130$) or a control group ($n = 129$). All patients received a pack containing inhaled

corticosteroids at their regular dosage. Asthma control was assessed at 3, 6, 9, and 12 months. Patients in the step-down group received a reduced dose if they had good control. Short-acting β -agonists were allowed in both groups.

MAIN OUTCOME MEASURES

Asthma exacerbations (any worsening of asthma requiring oral corticosteroids). Secondary outcomes included asthma-related events (hospital admission, emergency department visit, or general practice visit because of worsening asthma), and achieving a 50% reduction in inhaled corticosteroid dose.

MAIN RESULTS

Analysis was by intention to treat. Groups did not differ for asthma exacerbations or any asthma-related events (Table). 84% of the step-down group and 81% of the control group had good control. 49% of patients in

the step-down group completed the study with a reduced dose of inhaled corticosteroids. Step-down and control groups did not differ for oral corticosteroid use, but inhaled corticosteroid use was lower in the step-down group (use for 1 y 390 vs 517 mg, $P < 0.001$).

CONCLUSION

In patients with chronic, stable asthma, inhaled corticosteroids were safely stepped down.

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*See Glossary.

†Information provided by author.

Step-down vs usual dose (control) inhaled corticosteroids for chronic, stable asthma at 1 year‡

Outcomes	Step-down	Control	RRI (95% CI)	NNH
Asthma exacerbations	31%	26%	20% (-18 to 78)	Not significant
Hospital admission	3%	1%	297% (-39 to 2524)	Not significant
Emergency department visit	2%	1%	98% (-74 to 1405)	Not significant
General practice visit	35%	32%	8.9% (-23 to 54)	Not significant
			RRR (CI)	NNT
Home visit by general practitioner	2%	5%	50% (-77 to 86)	Not significant

‡Abbreviations defined in Glossary; RRI, RRR, NNH, NNT, and CI calculated from data in article.

COMMENTARY

The dose-response curve for inhaled corticosteroids is relatively flat, with most of the benefit on commonly measured outcomes (symptoms, peak flow, or use of rescue medication) occurring at lower doses (1). There may be a dose-response effect in prevention of asthma exacerbation.

In a recent study, the rate of improvement in measures of asthma control with inhaled corticosteroids was determined over time (2). In order, night-time symptoms, pulmonary function, daytime symptoms, and use of short-acting β -agonists improved over 1 to 4 months. However, airway hyperactivity improved slowly and was still improving at 72 weeks. Such results raise the question of whether the dose of inhaled corticosteroids can be stepped down in patients with chronic, stable asthma while maintaining asthma control.

Hawkins and colleagues designed a large, blinded study with 1 year of follow-up to answer this question. This well-done study showed that a substantial proportion of patients with chronic asthma (49%) could reduce their dose of inhaled corticosteroids by 50% without increasing either symptoms or exacerbations. One of the limitations of the study

was that participants were advised to use their reliever inhaler on a "regular basis," and no data were presented about changes in use of rescue medications after the reduction of inhaled corticosteroids. It should also be noted that about one third of patients were maintained on long-acting β -agonists.

This study showed that a step-down strategy can be used in patients with moderate or severe disease without compromising asthma control. Nevertheless, the fact that over half of the patients were unable to significantly reduce their dose of inhaled corticosteroids suggests that a conservative protocol (2) in stepping down inhaled corticosteroids may be warranted (e.g., 25% reduction at 8-wk intervals and maintaining peak flow $>$ 85% of baseline).

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References

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