A management strategy that controls lower airway eosinophilic inflammation and symptoms reduced exacerbations in asthma


**Question**
In patients with asthma, is a management strategy that controls lower airway eosinophilic inflammation and symptoms more effective than standard care for reducing asthma exacerbations?

**Design**
Randomized (allocation concealed)*,†, blind ed (clinicians and patients),* controlled trial with 12-month follow-up.

**Setting**
3 specialist clinics at a hospital in Leicester, England, UK.

**Patients**
74 patients (54% men, age range 18 to 75 y) who had moderate to severe asthma and probably needed continued hospital follow-up. Exclusion criteria included current smokers, a smoking history of > 15 pack-years, clinically important comorbidity, poor compliance with treatment, aggravating factors that were inadequately controlled (e.g., rhinitis), and a severe exacerbation within 4 weeks of entry to the trial. Follow-up was 92%.

**Intervention**
37 patients each were allocated to management with reference to the induced sputum eosinophil count (eosinophil group) or management by a modified version of the British Thoracic Society guidelines (BTS group). In the eosinophil group, decisions about anti-inflammatory treatment were made in accordance with an algorithm based on maintenance of a sputum eosinophil count < 3% with a minimum dose of antiinflammatory treatment. In the BTS group, treatment decisions were based on usual assessments of symptoms, peak expiratory flow, and use of β2-agonists.

**Main Outcome Measures**
Number of severe asthma exacerbations (defined as a decrease in the morning peak expiratory flow to > 30% below the baseline value on ≥ 2 consecutive d or deterioration in symptoms) and control of eosinophil airway inflammation measured by the induced sputum eosinophil count.

**Main Results**
Analysis was by intention to treat. Over 12 months, the number of severe exacerbations was lower in the eosinophil group than in the BTS group (35 vs 109 total exacerbations, \( P = 0.01 \)). The sputum eosinophil count was 63% (95% CI 24 to 100, \( P = 0.002 \)) lower in the eosinophil group than in the BTS group. Fewer patients in the eosinophil group than in the BTS group were admitted to hospital because of asthma exacerbations (1 vs 6, \( P = 0.047 \)). The groups did not differ for average daily dose of inhaled or oral corticosteroids.

**Conclusion**
In patients with asthma, a management strategy that controls lower airway eosinophilic inflammation and symptoms was more effective than standard care for reducing asthma exacerbations.

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*See Glossary.
†Information provided by author.

**Commentary**
Most physicians agree that inflammation plays a pivotal role in the pathophysiology of asthma. Unfortunately, few agree on how this inflammation is to be detected and quantified. Fewer still agree about its prognostic or therapeutic significance. For instance, Warke and colleagues (1) and van Den Toorn and colleagues (2) have shown airway inflammation is to be detected and quantified. Fewer still agree about the groundwork for earlier and more definitive interventions.

More current treatment protocols are based on the frequency and severity of patients’ symptoms (3). As we have seen in several other disciplines, such as atherosclerotic cardiovascular disease, early intervention to prevent symptoms seems to be considerably more successful than reacting to symptoms. Studies such as this one are hopefully setting the groundwork for earlier and more definitive interventions.

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**References**