

ENGLISH SUMMARY

HALO-GROUP:

LAURI LEHTIMÄKI
Professor of Respiratory
Medicine
University of Tampere
Allergy Centre, Tampere
University Hospital
E-mail: lauri.lehtimaki@uta.fi

PÉTER CSONKA
EEVA MÄKINEN
JAANA ISOJÄRVI
SIRPA-LIISA HOVI
ANNELI AHOVUO-SALORANTA



Role of fractional exhaled nitric oxide (FeNO) measurement in the management of asthma with corticosteroids

Background

Asthma is a chronic lung disease characterized by airway inflammation and bronchoconstriction. The aim of the treatment is to control symptoms and to optimize lung function mainly by using inhaled corticosteroids (ICS) to alleviate eosinophilic airway inflammation. Measurement of fractional exhaled nitric oxide concentration (FeNO) has been used as a non-invasive biomarker of asthmatic airway inflammation.

Objective and methods

Our objective was to assess the potential role of FeNO measurements in the management of asthma with corticosteroids by addressing six clinical questions. This is a systematic literature review including 11 prospective studies on the prognostic accuracy of FeNO measurement with regard to five prognostic questions. Further, the sixth question was answered by referring to the results of a recently published HTA report.

Effectiveness

Three of the five prognostic questions could partly be answered in this review. Although prognostic studies do not straightforwardly infer clinical utility, we conclude that in untreated asthma, a high FeNO level likely predicts good response to inhaled corticosteroids. In ICS-treated asthmatics, a low FeNO level probably excludes risk for asthma exacerbation, and the patient is not likely to benefit from increasing glucocorticoid medication regardless of possible symptoms. The HTA report, based on randomized controlled trials, states that during the first year of treatment, both in adults and in children, FeNO-guided management is likely to result in a non-significant trend towards better overall disease control. In adults this results in either a small or no reduction in ICS use, but in children it remains unclear whether ICS use is likely to increase or decrease.

Conclusions

Overall, the current evidence on the role of FeNO measurement in the management of asthma is incomplete. More research is needed to establish the role of FeNO measurement in managing asthma. Future studies should particularly target those asthma phenotypes in which FeNO is recognized as being associated with the activity of airway inflammation.