Use of sputum eosinophil counts to guide management in children with severe asthma

We thank Professors Pavord and Gibson for their commentary on our study investigating sputum eosinophil counts as a guide to management in children with severe asthma.[1 2] They suggest two important reasons for our negative results: (1) the protocol was not followed and (2) the protocol was incorrect. For the most part (95% of study visits), the protocol was followed by the research team, but as in all studies, whether the families did what was asked cannot be determined. The protocol allowed the capping of the inhaled corticosteroid (ICS) dose at 1000 mcg/day fluticasone propionate equivalent, and this was applied on 18 occasions (9% of study visits). We agree this cap may have been the reason that sputum eosinophils were inadequately controlled in the inflammatory management group and, hence, the expected reduction in exacerbations was not seen. Given the absence of any proven benefit from very high dose of ICS, and the known risk of harm from adrenal failure,[3 4] this seemed not unreasonable in an asymptomatic child. Furthermore, even if ICS therapy was escalated at 1000 mcg/day, the plateau of the ICS dose response curve may well have been reached and no additional anti-inflammatory benefit seen at these or higher doses. There is an urgent need to determine how best to ascertain when the top of the ICS dose response curve has been reached. It may be that low-dose oral corticosteroids (OCS) would correct distal inflammation beyond the reach of ICS deposition, but distal inflammation also cannot be measured sufficiently precisely to guide therapy in an individual. With the wisdom of hindsight, we would have reshaped the protocol, instituting a low-dose OCS, if inflammation was uncontrolled, at an ICS dose of 1000 mcg/day, and varied the dose of long-acting beta-agonists with symptoms.[5] However, whether parents would agree to give OCS to an apparently totally well child is highly dubious.

Louise Fleming, Andrew Bush

Department of Respiratory Paediatrics, Royal Brompton Hospital, London, UK

Correspondence to Dr Louise Fleming, Department of Respiratory Paediatrics, Royal Brompton Hospital, Sydney Street, London SW3 6NP, UK; l.fleming@imperial.ac.uk

Contributors LF and AB composed the letter.

Funding British Lung Foundation.

Competing interests None.

Ethics approval Royal Brompton and Harefield Ethics Committee.

Provenance and peer review Not commissioned; internally peer reviewed.

Accepted 20 June 2012
Published Online First 16 July 2012

Thorax 2012;**67**:1015–1016.
doi:10.1136/thoraxjnl-2012-201930

REFERENCES

1. **Fleming L,** Wilson N, Regamey N, *et al*. Use of sputum eosinophil counts to guide management in children with severe asthma. *Thorax* 2012;**67**:193–8.
2. **Pavord ID,** Gibson PG. Inflammometry: the current state of play. *Thorax* 2012;**67**:191–2.

3. **Todd G,** Dunlop K, McNaboe J, *et al*. Growth and adrenal suppression in asthmatic children treated with high-dose fluticasone propionate. *Lancet* 1996;**348**:27–9. 6–7.
4. **Todd GR,** Acerini CL, Ross-Russell R, *et al*. Survey of adrenal crisis associated with inhaled corticosteroids in the United Kingdom. *Arch Dis Child* 2002;**87**:457–61.
5. **Powell H,** Murphy VE, Taylor DR, *et al*. Management of asthma in pregnancy guided by measurement of fraction of exhaled nitric oxide: a double-blind, randomised controlled trial. *Lancet* 2011;**378**:983–90.