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Author's response

We thank Garcia-Talavera *et al* for their interest in our paper.[1] We acknowledge their finding, in a group of chronic obstructive pulmonary disease patients with only mild hypoxaemia, of a correlation between early oxyhaemoglobin desaturation during the 6-minute walk test (6MWT) and desaturation over 24 h.[2] The 6MWTs performed in our study were carried out according to American Thoracic Society guidelines.[3] Given their recommendations that oxygen saturation measured by pulse oximetry (SpO_2) should not be used for constant monitoring during the test and that the technician must not walk with the patient to observe SpO_2, saturation in our study was measured at rest and immediately at the end of the 6-minute period. We are thus unable to comment upon the presence or absence of early as opposed to late desaturation in our cohort of desaturators. Nonetheless, it is likely that our group of 50 'end test' desaturators would have included both early and late desaturators, according to the definition of Garcia-Talavera *et al*. We found no association between the degree of desaturation at the end of the 6MWT and our primary or secondary outcome criteria. Others have similarly found an absence of association between the degree of desaturation and improvement in exercise capacity with supplemental oxygen.[4] Whether or not early desaturation during the 6MWT correlates with desaturation during activities of daily living or nocturnally, it remains unknown whether such early desaturation correlates with degree of dyspnoea or whether treating it with supplemental oxygen would improve this symptom.

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CORRESPONDENCE

Peripheral airway/alveolar nitric oxide concentration in asthma

We read with great interest the paper by Gelb and colleagues[1] who suggest that peripheral airway/alveolar nitric oxide (NO) concentration after correction for axial NO back-diffusion ($CalvNO_{corrected}$) is normal during asthma exacerbation (with a hypothesis of an incidence of >30% of its increase). If one admits that an exacerbation constitutes the ultimate expression of loss of asthma control, their results are in line with ours demonstrating that $CalvNO_{corrected}$ is not a marker of asthma control.[2] Nevertheless, some of their patients with an exacerbation had an increase in $CalvNO_{corrected}$ since one can see in their figure 5 that almost 20% of their patients are above the 95th percentile of healthy subjects (~7 ppb). The small size of their cohort (n=15) is an obvious limitation that is acknowledged by the authors.

We therefore reanalysed the results of our multicentre trial[2] to evaluate the prevalence of increased $CalvNO_{corrected}$. When using an upper normal limit of 7 ppb for $CalvNO_{corrected}$ (that corresponds approximately to their upper normal value[1]), the prevalence of its increase is 23% (41/175) in our population of adults and children with asthma. In our study we further demonstrated a negative relationship between $CalvNO_{corrected}$ and mid forced expiratory flow ($FEF_{25-75\%}$), which may suggest that peripheral NO could be associated with airway remodelling.[2] This latter result was in line with the demonstration that peripheral airway/alveolar NO concentration (without correction for axial NO back-diffusion) correlated with $FEF_{25-75\%}$ in children with refractory asthma.[3] Puckett and colleagues recently suggested that children with asthma with increased $CalvNO_{corrected}$ (46/179, 26%) had significantly worse asthma control and morbidity.[4] Overall, all these results emphasise that peripheral airway/alveolar NO concentration, after correction for axial NO back-diffusion, can be increased in some patients with asthma (~25%). Whether peripheral NO helps to identify a specific 'phenotype' of asthma which may be more closely linked to severity than to control warrants further studies.

Gelb and colleagues also show that 2/15 subjects with an exacerbation had normal exhaled NO values.[1] Similarly, we have previously shown in a multicentre trial that patients with acute asthma admitted to the emergency department can have normal exhaled NO levels (2/65 patients in our study).[5]

In conclusion, the clinical usefulness of techniques to discriminate NO gas exchange between large central airways and peripheral smaller airways/alveolar compartments in patients with asthma remains to be established, and the factors governing the increase in exhaled NO remain partly determined.

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