MDRTB/XDRTB depends on drug sensitivity test (DST) results to the remaining first-line and reserve drugs.

We have previously demonstrated that our national ‘fastrack’ molecular tuberculosis and rifampicin resistance identification service significantly reduces time for detection compared with bacteriological culture. Overall, *Mycobacterium tuberculosis* complex is detected 15.2 days earlier than gold standard automated liquid culture methods and rifampicin resistance 30.7 days earlier.\(^1\)\(^-\)\(^3\)

During 2008, 53 UK cases of MDRTB were reported by the HPA,\(^4\) of which the NMRL identified 47 (89%). The NMRL identified a further 65 cases of MDRTB during 2009. Of the 112 MDRTB cases, 107 (96%) patients had a complete DST profile for all 11 drugs tested, and 87 (78%) isolates were initially identified as MDRTB by fastrack.\(^5\)

Fifty-one of the 107 isolates (48%) were resistant to rifampicin and isoniazid alone of the first-line drugs (table 1, group 1); 17 (53%) were additionally resistant to one reserve drug, ie, only 54 isolates (67%) were sensitive to all reserve drugs. In the remaining 56 isolates (52%), resistance to rifampicin and isoniazid was combined with resistance to another first-line drug (table 1, group 2), and 34 of these (61%) were additionally resistant to a reserve drug; 22 isolates (59%) were sensitive to all reserve drugs. Almost half (48%) of all MDRTB isolates were resistant to at least one reserve drug and 21% were resistant to all four first-line drugs.

Our results show multidrug-resistant isolates with resistance to one or more of the remaining first-line drugs increases the likelihood of resistance to reserve drugs. In table 1, the rate of resistance to any second-line drug was significantly greater in group 2 (61%) than in group 1 (53%) (Fisher’s exact test \(p=0.0065\)). Our findings justify a policy of using the ‘fastrack’ approach and, when rifampicin resistance has been detected and a culture obtained, of setting up DST to all first and reserve drugs immediately and simultaneously (rather than the conventional approach of DST for reserve drugs only when MDRTB is detected phenotypically). The NMRL has recently added a similar test for resistance to isoniazid and the introduction of genotypic tests for XDRTB would be highly desirable. This policy would greatly accelerate the return of DST results to relevant clinics, reducing the time for the instigation of appropriate management, helping to reduce any increasing prevalence of MDRTB.

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**Competing interests** None.

**Contributors** SLM was responsible for the drug sensitivity tests. FAD was responsible for policy development and is the guarantor. DCSH and NS developed the database for assessing the drug resistance patterns in MDRTB cases. All authors participated in the study design, had full access to all of the data and take full responsibility for the integrity and interpretation of the results and writing of the manuscript. All authors approved the final manuscript.

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**REFERENCES**

1. **Kru¨u¨ner A,** Yates MD, Drobniewski FA, Evaluation of Mycobacterium tuberculosis DST results to relevant clinics, reducing the time for the instigation of appropriate management, helping to reduce any increasing prevalence of MDRTB. *Thorax* 2011; 66:630–631.


A randomised trial of domiciliary, ambulatory oxygen in patients with COPD and hypoxaemia but without resting hypoxaemia

We read with great interest the recently published article by Moore et al\(^6\) and would like to make the following remarks. Desaturation with exercise is still a hotly debated issue, and the papers that deal with the effectiveness of oxygen therapy during exercise in patients with chronic obstructive pulmonary disease who desaturate have not shown any benefit.\(^7\)\(^-\)\(^9\) It should nevertheless be pointed out that there are different types of desaturating patients with exercise. Indeed, we recently published a paper\(^10\) the results of which clearly show that only patients who desaturate before 1 min—early desaturators—during the 6-minute walking test are associated with an important desaturation during daily life activities. This is why we believe that desaturation with exercise research has to take into account whether the patients are early or late desaturators in order to reach sound clinical conclusions. Along the same lines, the effectiveness of oxygen therapy in these patients can differ according to the type of patients (early or late desaturators).
Author’s response

We thank García-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 (SpO2) should not be used for constant monitoring during the test and that the technician must not walk with the patient to observe SpO2, 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 80 ‘end test’ desaturators would have included both early and late desaturators, according to the definition of Garcia-Talavera et al.4 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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REFERENCES


CORRESPONDENCE

Peripheral arterial/alveolar nitric oxide concentration in asthma

We read with great interest the paper by Gelb and colleagues5 who suggest that peripheral arterial/alveolar nitric oxide (NO) concentration after correction for arterial 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 trial6 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), 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 (FEF25–75%), 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 arterial NO back-diffusion) correlated with FEF25–75% in children with refractory asthma.3 Weckert and colleagues recently suggested that children with asthma with increased CalvNO_corrected (46/179, 26%) had significantly worse asthma control and morbidity.7 Overall, all these results emphasise that peripheral airway/alveolar NO concentration, after correction for arterial 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.5 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).8 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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