LETTERS TO THE EDITOR

Revision of BTS guidelines for treatment of asthma

The paper by Ward et al' confirms the findings of Laitinen et al2 showing that airways inflammation is present even in patients with mild asthma. This emphasises the importance of using anti-inflammatory drugs (steroids) as soon as the diagnosis of asthma has been confirmed, even in patients thought to have only “mild asthma”. Without anti-inflammatory treatment, symptoms resulting from bronchial hyperresponsiveness are never controlled and optimal lung function is never attained. Over time, structural changes (remodelling) occur leading to a progressive decline in lung function' and the risk of fixed obstruction (chronic obstructive pulmonary disease).

The present widespread dependence on bronchodilators in the UK may contribute to the fact that we have one of the highest respiratory death rates in Europe.' The use of bronchodilators alone as in step 1 of the BTS guidelines should be discouraged, and treatment started at step 2 with regular inhaled corticosteroids to control symptoms and maximise peak flow rate. Bronchodilators should be used only as necessary for breakthrough wheezing. These principles have been used in Finland since 1994 with remarkable success in treating asthma.3 The new BTS guidelines would do well to follow their example.

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References

Authors’ reply

We would like to thank Dr Strube for his interest in our recent paper' and his stimulating letter which is topical given that the new BTS guidelines on asthma management are currently in preparation. Our study was an attempt to investigate the interrelationships between airway inflammation, airway structural change (remodelling), lung function, and bronchial hyperreactivity to methacholine in patients with mild to moderate symptomatic asthma.

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Our paper is supportive of a further point, adding to work from others,' which we feel is potentially substantive, of possible importance to future guideline considerations, and perhaps relates to some of Dr Strube’s concerns. The potential paradigm shift is that determining appropriate treatment only by reference to symptoms and lung function, as in current international and draft BTS guidelines, or even against indices of inflammation, may be oversimplistic, with prolonged treatment necessary to benefit airway remodelling reflected by improvement in BHR. It should be recognised that this remains a hypothesis and, pragmatically, it is of interest that the inclusion of BHR as an asthma management tool in the UK is not resourced and is not currently practicable.4 5

We also realise that the demanding and detailed preparation of the BTS asthma guidelines has followed a due process of checking on the available evidence base with “levels of evidence” leading to “grades of recommendation” and, in turn, to “recommended best practice”. If appropriate pathophysiological research relevant to the clinical questions does not exist, it cannot be included. We feel that longitudinal data that seek to integrate information on airway inflammation, airway remodelling, lung function, and bronchial hyperreactivity and the effects of treatment are required. Such work, though demanding, is possible and would require multidisciplinary cooperation, dialogue, and appropriate support.

Chris Ward is a European Respiratory Society long term research fellow. The work was also supported by Australian NHMRC and a grant in aid from Glaxo Smith Kline.

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4 http://www.brit-thoracic.org.uk/guideline/guidelines.htm
Chronic respiratory failure

The recent case report by Smyth and Riley describes an extremely uncommon chronic respiratory failure due to hypoventilation secondary to brainstem stroke, and documents a new treatment option with medroxyprogesterone acetate.

We recently saw two patients also with central hypoventilation resulting in chronic type II respiratory failure and treated both with, among other things, medroxyprogesterone acetate (30 mg twice daily) with good results. The first patient, a 69 year old man with a medical history of glomus caroticum resection due to malignancy with postoperative radiotherapy, presented to our outpatient clinic with polyglobulia. Arterial blood gas analysis revealed marked hypoxaemia (Pao, 4.8 kPa) and hypercapnia (PaCO2 6.9 kPa). An intensive search for the cause showed no abnormality in the lungs function indicated only marginal chronic obstructive pulmonary disease (FEV,VC 68%) but his hypoxic ventilatory response was markedly decreased and his hypercapnic ventilatory response was absent. The patient was treated with acetazolamide, theophylline, and medroxyprogesterone acetate and his blood gas tensions improved within days to normal values (Pao, 10.3 kPa, Paco, 5.1 kPa).

The second patient, a 38 year old woman, was known from birth to have a hypothalamic pituitary gland deficiency with (stable) adipsitosis (quêtelet index 53). She had complained of incontinence, general malaise, and dyspnoea on several occasions before being sent to our department. Arterial blood gas analysis revealed hypoxaemia and marked hypercapnia (Pao, 8.0 kPa, Paco, 7.2 kPa). She probably suffered from hypothalamic-pituitary syndrome and its normal polysomnographic measurements will be performed shortly, but she also has a complete absence of hypoxic and hypercapnic ventilatory responses.

Again, treatment with theophylline, acetazolamide, and medroxyprogesterone acetate normalised her arterial blood gas tensions within days. Furthermore, she now follows an intense weight reduction programme and has lost more than 10 kg in weeks.

Acetazolamide has been shown to augment both the hypoxic and hypercapnic ventilatory response and to decrease PaCO2 levels significantly in patients with chronic obstructive pulmonary disease (COPD). The mechanism of the effect is possibly due to a direct effect on the peripheral chemoreceptors (carotid bodies) as well as on an effect on cerebral blood flow regulation.

It has been shown that medroxyprogesterone acetate also acts on the peripheral chemoreceptors (directly) as well as on the central chemoreceptors (indirectly) and prostaglandin receptors. This is consistent with hypothalamic in carotids. This was also found in hypopituitaric COPD patients, indicating that medroxyprogesterone acetate acts centrally on the respiratory centres. This supports the use of medroxyprogesterone acetate in central hypoventilation. Furthermore, the combined treatment of acetazolamide and medroxyprogesterone acetate increases ventilation and improves arterial blood gas values—that is, it decreases PaCO2 to normocapnic values and increases PaO2 to almost normocapnic values in hypcapnic and hypoxic patients with COPD.

In conclusion, we agree with Smyth and Riley that medroxyprogesterone acetate can be used in patients with central hypoventilation disorders.

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References

Caffeine and exhaled nitric oxide

We read with interest the paper by Bruce et al which reported a significant decrease in exhaled nitric oxide (NO) levels 1 hour after caffeine consumption. However, we do not believe that this study has fully clarified the mechanisms underlying caffeine consumption and exhaled NO levels.

When ascertaining the normal ranges for offline exhaled NO measurements we observed that some individuals had raised exhaled NO levels 1 hour after caffeine consumption. To further clarify this effect, exhaled NO (parts per billion (ppb)) levels were measured at baseline and 0.5 and 1 hour after drinking a hot cup of coffee in 18 healthy non-asthmatic adults (five men).

Exhaled NO was measured by chemiluminescence (NOA 280, Sievers Instruments Inc, Boulder, CO, USA) using an offline technique in which subjects performed a slow vital capacity manoeuvre in a mylar balloon against a resistance of 5 cm H2O which corresponded to a flow rate of 50 ml/s. In order to minimise NO contamination from the upper airways and dead space, the first portion of the exhalation was not collected. Median (interquartile range) levels of exhaled NO were significantly increased from baseline values 0.5 hour after caffeine consumption (4.5 (4.2–8.3) ppb, difference between medians 2.9 ppb (95% CI 1.4 to 12.4), p = 0.007). There was no significant difference between baseline levels and the levels 1 hour after caffeine consumption (4.7 (2.6–6) ppb, p = 0.068).

We conclude that levels of exhaled NO are significantly increased compared with baseline values 0.5 hour after caffeine consumption and have returned to baseline levels by 1 hour. The mechanism for this remains unclear. These results may need to be taken into consideration alongside the results of the previously mentioned study when designing studies and interpreting exhaled NO levels in adults.

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References

Authors’ reply

We thank Warke et al for their interest in our paper and for publicising their results. This disparity in the effect of coffee between the two studies is not easy to explain. Although the sex ratio was similar, our study differed in the following ways: it was measured online, it was placebo controlled, showed that caffeine alone was the active ingredient, and our subjects had less heterogeneity in baseline levels of exhaled NO than those of Warke et al. In addition, we used freshly brewed coffee, measuring both the caffeine content and the serum plasma caffeine levels. Warke et al did not estimate the caffeine content of their coffee which would have been important, especially as instant coffee can have very low levels. We eschew instant coffee, and this may account for the difference. Whatever the cause of such a difference, it appears that coffee consumption can affect exhaled NO levels at either of the antipodes, perhaps in opposite directions.

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Morbid obesity and hypersomnolence in several members of an ancient royal family

Recent studies have described an inherited basis for the sleep apnoea syndrome, as suggested by reports of families with multiple affected members. We present evidence indicating that several members of the Ptolemy family, the royal family that ruled Egypt from 305 to 30 BC, suffered from obesity and sleep-disordered breathing. Most of the information was reported by the Greek philosopher and historian Athenaeus (170–230 BC).

The family’s pedigree with all affected members (shaded) is shown in fig 1. Magas I (case 1) was morbidly obese. Athenaeus reported that Magas “was weighted down with monstrous masses of flesh in his last days; in fact, he choked himself to death.” Ptolemy II (case 2) and his sister Arsinoe III were extremely obese. Ptolemy II was not an energetic man and he disliked physical exertion. Although he lived to the age of 62, he was troubled by ill health throughout most of his life. Ptolemy IV, the Philopator (case 3),
morbidly obese. Ptolemy VIII Evergetes II (case 6) was portrayed by historian Polybios as "apt to be lethargic and inert". Justinus added that he was extremely obese and sluggish. Ptolemy VIII Evergetes II (case 6) was morbidly obese. Apart from naming him Evergetes (benefactor), Alexandrians labelled him Kakergetes (malefactor) and—because of his obesity and large belly—"Physcon" (large bubble). Ptolemy VIII's belly was so large that "Physkon, and due to gluttony somnolent". A more general reader may find better value in a textbook but could still profit from borrowing some excellent chapters. However, the overall volume is slightly disappointing and would do cover many other interesting facets of COPD but clinicians who purchase this book will also be aware of substantial omissions in clinical areas of COPD care that are currently being developed. There is, for example, very little on rehabilitation or the organisation of services. There is nothing at all on nursing intervention, terminal care, travel, or self-management. There is, however, a welcome attempt to cover the global issues surrounding COPD.

This is an expensive book which contains some excellent chapters. However, the overall volume is slightly disappointing and would compare badly with a thoughtfully structured comprehensive textbook. In the past this series has worked well where it examines the leading edge of research. In this instance the more general reader may find better value in a textbook but could still profit from borrowing a copy from the library.

**BOOK REVIEW**

Clinical Management of Chronic Obstructive Pulmonary Disease


According to the publishers, this book is a comprehensive review of recent evative and management strategies aimed at practising clinicians. In the past, most of the volumes from this epic series have concentrated on selective aspects of the scientific basis of respiratory disease and therefore attracted the interested specialist. As on previous occasions, the format follows the pattern of a series of reviews written by acknowledged scientific experts. As usual the book is expensive, and is wide in scope with over 90 collaborators and more than 1000 pages. Unlike a textbook, however, the content lacks strong editorial control and it is effectively a collection of individual reviews. The quality of the chapters is therefore inconsistent. Some authors have clearly accepted their brief and produced excellent reviews. In particular, the chapters on radiology, dyspnoea, genetics, and trial methodology are outstanding. However, many other chapters fall short and there is evident "resting on laurels" in some areas. The book does cover many other interesting facets of COPD but clinicians who purchase this book will also be aware of substantial omissions in clinical areas of COPD care that are currently being developed. There is, for example, very little on rehabilitation or the organisation of services. There is nothing at all on nursing intervention, terminal care, travel, or self-management. There is, however, a welcome attempt to cover the global issues surrounding COPD.

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