LETTERS TO THE EDITOR

BCG vaccination by multipuncture method

I write in response to the article by Al Jarad et al. on this topic. The first study to compare the efficacy of BCG vaccination and its side effects using the Bignal multipuncture device with the reusable handle and disposable heads was the pilot study of neonatal BCG vaccination carried out in 1992 for the Department of Health in our health authority.1

In previous studies in neonates and children under two, referenced in the paper by Al Jarad,18–20 needle percutaneous head gave approximately the same degree of tuberculin conversion as did intradermal vaccination but, to achieve this in older children and adults, 36–40 punctures were required. This would require either a 40 needle head or a double vaccination with two × 18–20 needles. This is why percutaneous BCG is currently only licensed for children aged under two years. Although in neonates1 and in Al Jarad’s study1 in older children the rate of tuberculin conversion was lower with percutaneous than with intradermal vaccination, tuberculin conversion does not necessarily equate to lower efficacy. In the early studies on BCG the protective efficacy of the vaccination was related to the presence of a scar after vaccination, but not to the tuberculin test result after vaccination. Those with a BCG scar but a negative post vaccination tuberculin test—that is, no tuberculin conversion—had the same degree of protection against tuberculosis over the 15 years following vaccination as did those with a scar and a positive post vaccination tuberculin test.2

The multipuncture method is undoubtedly easier to use in neonates because their very thin skin makes intradermal vaccination difficult, and also in nervous teenagers. Further long term studies on large numbers of subjects would be required to determine whether the technique using only 18 needles in older children is as effective as intradermal vaccination. Such studies may well prove to be unnecessary. The PHLS system for enhanced tuberculosis surveillance begun this year should, with sufficient cooperation, be able to give the relevant information by the end of 2001 to show whether England and Wales meet the internationally recommended criteria for discontinuation of unselective BCG vaccination in low prevalence countries.1 BCG vaccination of selective at risk groups, however, would still be required.

L PETER ORMEROD


Respiratory care units for non-invasive mechanical ventilation in motor neurone disease

We read with interest the review by Polkey et al3 pointing out the need to use all means possible to enable patients with motor neurone disease to achieve the best quality of life.

The authors state that, in order to maintain 24 hour ventilatory support, nasal ventilation must be complemented with alternative strategies during the day that are not suitable for widespread use in district general hospitals. We consider that it is possible to maintain 24 hour non-invasive ventilation in patients with motor neurone disease if nasal ventilation is combined with other non-invasive techniques such as mouth piece ventilation or a pneumobelt, and with manual or mechanical expiratory muscle aids to clear secretions in those patients whose weakness makes spontaneous coughing ineffective.4 It is important to provide these techniques because they can delay tracheostomy and additional problems in most patients with motor neurone disease and are the only way for those patients who reject tracheostomy but need ventilatory support. However, we agree in agreement with Polkey et al that this treatment must be performed by trained staff in respiratory care units. Moreover, these units are the best place to prevent respiratory morbidity and mortality, to enhance cooperation between patients, relatives and caregivers, and to manage clinical and psychological problems during the terminal phase of the disease.

In our experience the care of patients with motor neurone disease outside respiratory care units needs to be improved. These patients must not be negatively discriminated against compared with other chronic patients receiving even more expensive but socially accepted treatment. We must therefore try to ensure that all patients with motor neurone disease have access to specialist advice where this is necessary. However, we agree that patients with motor neurone disease should have access to specialist expertise where this is necessary. However, we are also conscious that travel can be difficult for some patients with advanced disease and our experience is that, in many cases, satisfactory palliation can be achieved using non-invasive positive pressure ventilation alone. This treatment could theoretically be...
Ashma deaths in Scotland and in Wales

It is surprising to say the least that, although the two inquiries into asthma deaths published recently in Thorax1 3 made the point that most asthma deaths occurred outside hospital, the deaths of a number of patients known by the unit to be subject to frequent episodes of severe asthma; in most cases a number of other factors including aspiration of vomit and the use of non-prescribed drugs was a contributory factor. There is therefore no evidence of deaths which would have been prevented by fast track admission and, with the more widespread administration of oxygen and nebulised drugs, ambulances and paramedical ambulance crews, there are other reasons for emphasising the use of normal referral services, as well as promoting patient self-management to minimise the occurrence of such episodes.

C E BUCKNALL
S C WRIGHT
Department of Respiratory Medicine,
Gartnavel General Hospital, Glasgow G12 0YN, UK

AUTHORS’ REPLY

We welcome and highlight the impossibility of including all the information obtained in a study such as SCIAD1 in a paper of suitable length for publication. The sudden deterioration of previously well patients, so called “brittle asthma”, was not a major feature of the deaths studied, raising the possibility that there may be relatively fewer such patients or that patients who die suddenly in the community, even with a history of asthma, are certain with other causes of death. It is noteworthy that the routine management of patients studied, including the use of inhaled steroids, was appropriate in the majority of cases, so it may be that a general improvement in standards of asthma care, there are fewer patients with brittle disease than there were previously. Review of the cases where deaths were cited as a factor showed no case where delaying admission by a chest physician was the only factor in patients in whom a sudden onset of symptoms was reported; poor compliance was also commented on in these few patients. A review of the cases where death occurred in A&E likewise revealed no case of sudden deterioration (within hours) definitely due to sudden onset of severe asthma; in most cases a number of other factors including aspiration of vomit and the use of non-prescribed drugs was a factor. There is therefore no evidence of deaths which would have been prevented by fast track admission and, with the more widespread administration of oxygen and nebulised drugs, ambulances and paramedical ambulance crews, there are other reasons for emphasising the use of normal referral services, as well as promoting patient self-management to minimise the occurrence of such episodes.

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C E BUCKNALL
S C WRIGHT
Department of Respiratory Medicine,
Gartnavel General Hospital, Glasgow G12 0YN, UK


**AUTHOR’S REPLY** The author thanks Dr Todd for his constructive comments on her review article.

There are few published randomised controlled trials of nebulised fluticasone or budesonide in the treatment of patients with asthma. Despite this, these agents are being actively marketed by the pharmaceutical industry so it is vital that the debate about the place of nebulised corticosteroids in the treatment of asthma should be open. The author therefore thinks that it is justifiable to review what evidence is available, accepting its limitations in abstract form.

The author aplogises for incorrectly quoting a paper comparing the potency of budesonide and fluticasone. The correct reference is cited below. However, the author had presumed that the readers of *Thorax* would be well aware that data comparing different inhaled corticosteroids apply only to the type of inhaler used in any comparison, and that this basic principle did not require explanation.

Dr Todd’s comments about different neb- uliser systems and drug solubility are well taken. However, this was a short review of the available clinical evidence for the use of nebulised corticosteroids in the treatment of patients with asthma. It was not possible to, nor did I, review nebuliser pharmacokinetics and, as Dr Todd states, there are no comparative studies of the potency ratio of nebulised budesonide and fluticasone.

Dr Todd is a consultant to several pharmaceutical companies and, as Dr Todd states, there are no comparative studies of the potency ratio of nebulised budesonide and fluticasone.

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Studies, the highest value for \(C_{\text{max}}\) was used. In some cases, the expected lung dose from a given device, such as the Accuhaler, did not reflect the usual 2500 µg nominal dose of salbutamol. Values are shown as mean and 95% CI for ordinary (CFC: Ventolin, HFA: Airomir) or breath activated (Ventolin Easibreathe) pressurised metered dose inhalers (pMDIs); dry powder inhalers (Turbohaler, Diskhaler, Accuhaler); pMDI + 750 ml plastic spacer (Volumatic, Nebuhaler), and 250 ml metal spacer (Nebuchamber), and 145 ml plastic spacer (Aerochamber); and Sidestream nebulisers.

Figure 1: Relative lung dose, shown as maximal plasma salbutamol concentration \(C_{\text{max}}\), from the early lung absorption profile over the first 20 minutes following inhalation of a 1200 µg nominal dose of salbutamol. Values are shown as mean and 95% CI for ordinary (CFC: Ventolin, HFA: Airomir) or breath activated (Ventolin Easibreathe) pressurised metered dose inhalers (pMDIs); dry powder inhalers (Turbohaler, Diskhaler, Accuhaler); pMDI + 750 ml plastic spacer (Volumatic, Nebuhaler), 250 ml metal spacer (Nebuchamber), and 145 ml plastic spacer (Aerochamber); and Sidestream nebuliser.

There were no differences in lung dose between CFC-pMDI, HFA-pMDI, and the dry powder inhalers, although the Accuhaler produced lower levels than the Diskhaler. As expected, the addition of a Volumatic spacer increased the lung delivery for both CFC-pMDIs and HFA-pMDIs. When used in combination with a Volumatic spacer there was greater delivery with HFA than with CFC. The Sidestream nebuliser resulted in a lower relative lung dose than any of the other devices. However, if an adjustment is made to reflect the usual 2500 µg nominal dose administered by nebuliser \(C_{\text{max}} = 2.52\) ng/ml, the lung dose is similar to the adjusted value for a 400 µg nominal dose from a Nebuhaler spacer with HFA-pMDI \(C_{\text{max}} = 2.96\) ng/ml.

Although increased airway calibre in asthmatic patients will reduce the lung dose of salbutamol from a given device, the relative difference in lung bioavailability between devices will remain the same and is related to the bronchodilator response. Measurement of the lung bioavailability of salbutamol in healthy subjects may therefore represent a simple in vivo method for preliminary quantification of the relative lung dose from different inhaler devices to select rational doses for subsequent clinical equivalence studies in asthmatic patients.

**NOTICE**

International Pediatric Respiratory and Allergy Congress

The International Pediatric Respiratory and Allergy Congress will be held on 1–4 April 2001 at the Prague Congress Center, Prague, Czech Republic. For further information contact the Congress Secretariat at the Congress Centre, Czech Medical Society, JEP Sokolská 31, CZ-120 26 Prague, Czech Republic. Telephone +4202 2968899 or +4202 297271; fax +4202 294610 or +4202 2421683. Email: lioneova@cls.cz