LETTERS TO
THE EDITOR

BCG vaccination of schoolchildren in England and Wales

We read with interest the article by Drs V H Springett and I Sutherland (February 1990;45:83-8) and would like to support from our own experience in Avon their conclusion that when the school BCG scheme is stopped the consequences will not be “epidemiologically disastrous” for young adults.

Tuberculosis notification rates in Avon have always been lower than the rates for England and Wales and thus it was one of the first area health authorities to discontinue routine BCG vaccination in children in 1976, except for at-risk neonates. Recently we have reviewed all cases of tuberculosis in Avon (except Bath) since 1976 from the notification register and Hospital Activity Analysis. The accompanying graph shows respiratory tuberculosis notification rates for all ages and all (respiratory and other) tuberculosis notifications for the 15-24 year age group in England and Wales and Avon. In view of the wide fluctuation in yearly rates among the 15-24 year age group in Avon due to very small numbers, we have calculated all the rates as a three year rolling average from 1976-8 to 1987-9. As expected, the notification rates among the 15-24 year age group in Avon—that is, the group most affected by the policy change—show a slight increase in 1980-2 and subsequent slowing of the rate of decline. On the whole, however, it would appear that cessation of routine BCG vaccination in 1976 had no significant deleterious effect on the tuberculosis notification rate in Avon.

No routine tuberculin skin tests have been performed in Avon since 1976, so we propose to do a tuberculin sensitivity survey in children aged 15-19 to determine the current natural conversion rate in Avon.

The results will give a measure of the transmission of the infection in the community and provide us with valuable information at a time when there is considerable debate about the future policy of the schools BCG vaccination programme.

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Tuberculosis notification rates/100 000 population: respiratory tuberculosis at all ages and all tuberculin at 15-24 years from 1976-8 to 1987-9.

Concentrations of cefixime in bronchial mucosa and sputum

Dr D R Baldwin and colleagues (May 1990; 45:401-2) have presented data on concentrations of the oral cephalosporin antibiotic cefixime in blood, sputum, and bronchial biopsy material. The concentrations of cefixime were below the assay limit in 13 of the 18 sputum specimens tested, but higher ones were noted in the bronchial biopsy specimens. Because of these findings, the authors believed that cefixime might have a role in the treatment of acute exacerbations of chronic bronchitis.

We have studied 20 patients with an acute exacerbation of chronic bronchitis, 10 receiving 200 mg cefixime twice daily for seven days and 10 a 400 mg dose once daily. Sputum was cultured before, during, and after the treatment; concentrations of cefixime were measured microbiologically in serum and purulent sputum at standard times after the first drug dose. Mean peak serum concentrations of 2-5 mg/l after 200 mg and 6-2 mg/l after 400 mg were found, though one patient had no antibiotic in the blood despite supervised administration. Four patients given 200 mg and two given 400 mg showed no detectable concentrations in the sputum; the mean sputum concentrations in the other patients were 0-08 and 0-23 mg/l.

Penetration from blood to sputum averaged just under 4%. The MIC90 values for Streptococcus pneumoniae rose from 0-25 mg/l (before treatment) to 4 mg/l (after treatment) and those for Branhamella catarrhalis from 0-06 to 0-5 mg/l.

Five of the 10 patients given 200 mg doses and four of the 10 given 400 mg cefixime were assessed as treatment failures. S pneumoniae was responsible in four patients, B catarrhalis in three, and Haemophilus influenzae combined with B catarrhalis in one other. The patient with no cefixime in blood or sputum also represented a treatment failure. No unwanted drug effects were noted.

Our conclusion therefore differs from that of Dr Baldwin and his colleagues. In view of the above findings and our previous unfortunate experiences with cefuroxim axetil and cefaclor we believe that no oral cephalo-{}

spirin has yet been found which is suitable for patients with acute purulent exacerbations of chronic bronchitis, presumably for the following reasons: (1) poor or irregular absorption, (2) poor penetration into infected sputum, (3) instability in the presence of (B catarrhalis) β lactamases, (4) development of relative resistance during treatment, and (5) the high cost in relation to the results achieved.

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AUTHORS’ REPLY The results of Dr Maesen and colleagues differ from those of a randomised double blind multicentre study1 in which cefixime 400 mg daily with amoxycillin 500 mg twice daily was compared. Clinical cure was found in 13 of 22 patients treated with cefixime (59%) compared with 14 of 24 treated with amoxycillin (58%). All patients in the cefixime group and all but one in the amoxycillin group improved. All 29 pathogens isolated were eradicated by cefixime whereas 24 of 29 were eradicated by amoxycillin. This study has the advantage of providing a comparison with established treatment.

With regard to the apparent rise in minimum inhibitory concentrations for the pretreatment and post-treatment isolates of Moraxella (previously Branhamella) catarrhalis, Dr Maesen and colleagues have not stated whether their MICs were obtained in parallel from pretreatment and post-treatment isolates or on different occasions. This is important when MIC data are being compared. The MIC90 values given are within the expected range for both β lactamase and non-β lactamase producers2 and the observed differences could therefore be attributable to methodological factors. We could also point out that their use of the term MIC90 may be incorrect when so few strains have been included.

A recent paper3 compared the relative in vitro activity of 39 antibiotics on 74 clinical isolates of M catarrhalis, of which 58 were β lactamase producing strains. The MIC90 of cefixime was 0-5 mg/l for both β lactamase and non-β lactamase producing strains, indicating that cefixime is relatively stable in the presence of β lactamase. The rise in MIC values for the pneumococcus is curious but could be explained if the pretreatment and post-treatment isolates were not the same strains (that is, were not selected serologically). The mechanism of resistance is not clear as alteration in penicillin binding proteins, possibly by transformation, is very unlikely in four patients over a short time period.

In view of the favourable in vitro activity of cefixime, it may have a role in the treatment of chronic bronchitis, particularly where resistance patterns preclude first line drugs.
Clinical correlates of angiographically diagnosed idiopathic pulmonary hypertension

We read with great interest the report by Dr H H Gray and his colleagues (June 1990;45: 442-6). Several points are raised which, we feel, merit comment and, hopefully, clarification. The most critical one is the distinction between what we prefer to call major vessel chronic thromboembolic pulmonary hypertension and small vessel idiopathic pulmonary hypertension. This distinction has major management implications. The most vital one is that chronic thromboembolic pulmonary hypertension is potentially subject to surgical correction by thromboendarterectomy; idiopathic pulmonary hypertension is not. Furthermore, as Dr Gray and colleagues note, medical management of the latter entity is not successful, with transplantation as the “final option.” We have evaluated and followed more than 220 patients with major vessel, chronic thromboembolic pulmonary hypertension who have undergone thromboendarterectomy; our experiences in making this diagnosis may be germane. One of the central problems in determining the diagnosis has been the terminological confusion created by the World Health Organisation classification of idiopathic pulmonary hypertension, a classification which has outlived its usefulness. Particularly troublesome is the “idiopathic” subcategory introduced by the “thromboembolic” subcategory. We would submit that a “1990s” classification would be “small vessel pulmonary hypertension” and “large vessel thromboembolic pulmonary hypertension.” In the first category are patients whose pulmonary hypertension arises from obstruction in the small, distal “resistance” vessels of the lung. Various lesions cause such obstruction, as has been amply demonstrated. Among these are so-called “thrombotic” lesions. In our view patients with such lesions should no longer be described as having thromboembolic pulmonary hypertension as no evidence for embolism has been demonstrated, and many, if not all, such lesions arise in situ from endothelial injury. In the second category are patients whose pulmonary hypertension arises from obstruction of the large elastic arteries (main, lobar, segmental). These organised obstructions, thrombi arise, in virtually every patient, from embolisation of venous thrombi. This distinction is not only pathogenetically more useful, it is also operationally critical. Patients in the second category can be substantially aided (even “cured”) by thromboendarterectomy; patients in the former category cannot.

Other considerations follow once this distinction is made: anticoagulation in true thromboembolic (“large vessel”) hypertensive is, in our view, essential. The same can be said of Greenfield filter placement, to protect against further embolism in patients with substantial, large vessel thromboembolic pulmonary hypertension. As Mansour et al and others have noted, the morbidity and mortality of this procedure is negligible (in contrast with the former application). In small vessel hypertension the value of anticoagulation is much less certain and filter placement is not indicated in the absence of venous thrombosis. We agree with Dr Gray and colleagues that separating the two conditions is difficult and frequently impermissible on clinical grounds. We have, however, found a much higher frequency of a history compatible with deep venous thrombosis or pulmonary embolism in half of all patients) in cases of major vessel obstruction (perhaps this is because one of us has taken the history in each of these cases). There also is one distinctive physical finding in large vessel thromboembolic pulmonary hypertension: a flow murmur (as in congenital pulmonary artery branch stenosis), due to partial obstruction by a chronic thrombus; one or more of these murmurs can be heard over the lung fields during breath holding in some 30% of patients. We have not heard such murmurs in patients with small vessel pulmonary hypertension.

As Dr Gray and colleagues have suggested, the perfusion lung scans and pulmonary angiograms in these groups differ substantially. In regard to perfusion lung scans, we have not found segmental or larger perfusion defects in patients with small vessel pulmonary hypertension. All patients with major vessel chronic thromboembolic pulmonary hypertension have had one (usually more and larger) such defect. (But commonly the perfusion scan defect understimates the extent of major vessel obstruction.)

The key test, of course, is the pulmonary angiogram. It is quite distinctive in the two conditions. In small vessel pulmonary hypertension a persistent and normally tapering elastic arteries are seen, with "pruning" of the small, distal vessels (that is, no "capillary" blush). In large vessel chronic thromboembolic pulmonary hypertension various patterns are seen in the central arteries: frank obstruction, peculiar taperings and irregularities, webs, and bands. These many patterns reflect the variability in the way in which central (main, lobar, segmental) thrombotic occlusions organise and recanalise. Direct fibroepithelial and angiography helps diagnosis occasionally.

We concur with Dr Gray’s conclusion that does not help to distinguish the two conditions. All the small vessel lesions “characteristic” of small vessel pulmonary hypertension can be found in major vessel thromboembolic pulmonary hypertension and in other disorders associated with pulmonary hypertension. Biopsy therefore may obfuscate rather than elucidate the diagnosis. History taking, lung scanning, pulmonary angiography, and angioscopy are the most useful techniques for obtaining a diagnosis.

Because of the major management implications of making the correct diagnosis, we hope that the confusion will be solved by “mixing” large vessel thromboembolic pulmonary hypertension with small vessel pulmonary hypertension (in which thrombotic lesions may occur) can be dissipated; patients with the former, potentially removable condition can then be recognised and managed appropriately.

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ANTEMORTEM RECOGNITION OF BRAIN METASTASES IN MALIGNANT MESOTHELIOMA

Dr M Huncharek and J Muscat report that antemortem diagnosis of central nervous system metastases from pleural mesothelioma is rare, with only three reports of antemortem diagnosis (Gray 1990;145:571). I suspect that this is due to underreporting with the rarity of the condition. Indeed, on the day I read the article I received a necropsy report.

AUTHOR’S REPLY We welcome the comments of Professor Moser and his colleagues, whose experience in the field of idiopathic pulmonary hypertension is well known. Our paper was a retrospective review of patients presenting with unexplained pulmonary hypertension and as such suffers from certain weaknesses. Our finding of a lower incidence of prior deep venous thrombosis or pulmonary embolism in the group with asymmetrical pulmonary arteriopathy than that in Professor Moser’s group, and the absence of pulmonary flow murmurs in the case records, may represent one of these weaknesses as the incidence of these findings would almost certainly be higher in a prospective study when someone with a particular interest in the subject makes the clinical assessment.

We agree entirely with their comments concerning the distinction between patients with idiopathic pulmonary hypertension and those with aetiology. The histological differentiation into the three WHO categories (primary plexogenic, thromboembolic, and pulmonary veno-occlusive disease) may be difficult and indeed makes the assumption that there are in fact three separate disease entities, whereas it may be that a range of diseases exists. Such a differentiation is often clinically unhelpful and, as clinicians, we agree that until the aetiologies of idiopathic pulmonary hypertension are more clearly defined it may be more helpful to make distinction between patient groups based on therapeutic options.

The distinction that Professor Moser and his colleagues use in dividing patients into those with small and large vessel pulmonary obstruction has a lot to recommend it from a therapeutic point of view and has the additional advantage that patients are not divided into a diagnostic label, but rather on treatment and on speculation about the causes of their pulmonary hypertension. If the causes of idiopathic pulmonary hypertension become clearer and if an imaging or pathological technique becomes available that reliably separates patients into these aetiological groups, the patient can be given an accurate diagnosis. Until then a distinction based on therapeutic groupings would have more practical benefit.
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