PostScript

LETTERS TO THE EDITOR

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BMD and airways disease

The papers recently published in *Thorax* by Tattersfield *et al*[1] and Walsh *et al*[2] offer important information about the possible adverse affects of corticosteroids on bone mineral density (BMD). Tattersfield and her colleagues reported no change in BMD with inhaled corticosteroids for mild asthma, while Walsh *et al* found a dose related increase in the incidence of fractures in those taking oral corticosteroids. We would like to report our study of BMD in patients with airways disease, which reinforces these findings and highlights men as being particularly at risk.

We prospectively studied 100 consecutive outpatients (44 men) with steroid responsive airways disease. The formulation and cumulative dose of corticosteroid was recorded in each individual, together with all prescribed prophylaxis for osteoporosis. Bone mineral density was measured in the non-dominant forearm. We found no relationship between inhaled corticosteroid dose and BMD. Mean BMD was significantly reduced in those on oral as opposed to inhaled steroids. In men the mean Z scores for those on inhaled and oral corticosteroids were 0.1 and –0.6, respectively (p=0.07), while women had mean Z scores of 0.5 and –0.3 for inhaled and oral corticosteroids, respectively (p=0.016). Our patient numbers were insufficient to confirm a dose response. The surprising result was that men were more likely to meet the WHO criteria for osteoporosis than women (25% *v* 12.5%). This result is explained at least in part by the use of prophylaxis which was prescribed to 21 women but to only two men. Of those on regular oral steroids, only 5.5% of men received prophylaxis compared with 62.5% of women. Similar results have been reported in other chronic diseases, with a greater reduction in BMD being reported in men with cystic fibrosis.[3]

Unfortunately it appears to have been assumed that men are protected from osteoporosis by virtue of their gender. When chronic disease is treated with oral corticosteroids, both men and women are equally at risk of osteoporosis and all should be considered for prophylaxis.

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AHR in asthma

Peat *et al*[1] have contributed a helpful review to the debate on techniques for measuring asthma in population studies. However, they have endorsed airway hyperresponsiveness (AHR) while neatly sidestepping the issue of what test they are discussing. Inhaled provocation tests used in epidemiological work have included histamine, methacholine, hypertonic saline, cold air, and adenosine. Exercise provocation tests have also been used. Peat *et al* have previously shown that exercise and histamine challenges may define different groups of children,[2] and we have shown that longer term repeatability of a free running exercise provocation test is poor within a childhood population.[3] In adults quite considerable within subject variability in PD_{20} to methacholine has been observed during a 1 year period,[4] and a childhood population study found that methacholine PD_{20} varied by >4 doubling doses within the course of a year in 33% of the subjects.[5]

We would suggest that more care should be taken to define the precise measure of AHR used before comments can be made about its sensitivity and specificity in an epidemiological survey. The medium term temporal variation in AHR seen by a number of researchers is another measure which may make it difficult to make useful comparisons between populations.

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Authors' reply

Primhak and Powell make the valid point that the presence of airway hyperresponsiveness (AHR) is not an absolute attribute. Abnormal AHR represents one end of a continuum of responsiveness. Furthermore, the distribution of that continuum varies according to the nature of the direct or indirect stimulus that is applied.

In our studies, referred to in the review, we have defined abnormal airway responsiveness as a decline of more than 20% in forced expiratory volume in 1 second (FEV_1) after inhalation of a cumulative dose of histamine of $\leqslant 3.9\ \mu$mol. Using this criterion, the presence of AHR is a useful marker of airway abnormality consistent with asthma in epidemiological studies[1] and is also predictive of the subsequent course of the disease.[2] We acknowledge that other criteria for the presence of AHR have not been evaluated as extensively in epidemiological studies. However, there is evidence that at least some indirect agonists, such as non-isotonic aerosols and exercise, also have a high level of specificity but only moderate sensitivity as markers of asthma symptoms.[3 4]

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One fibre or many; what causes mesothelioma?

In a recent case (00/TLQ/1284) in the Queen's Bench Division of the High Court in England, a widow sued on behalf of her husband who had died at the age of 60 of mesothelioma. Unusually for such cases, Mr Justice Curtis found for the defendants, and the grounds for his judgement were sufficiently curious to be of general interest and worthy of debate.

It was not disputed that the deceased had been exposed to substantial quantities of asbestos during two periods of employment, nor that there had been a breach of statutory duty by his employers at that time. The judgement was based, however, on the expert and agreed opinion of "two most highly qualified medical men". In their joint report and oral evidence, the judge believed these doctors to have stated that mesothelioma is the consequence of malignant transformation in a single cell, the result of a hit by either one or several fibres. This led the judge to reason that, although a fibre or fibres inhaled during one