The debate on techniques for measuring BMD and airways disease

The papers recently published in Thorax by Tattersfield et al1 and Walsh et al2 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 similar 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 62.3% of women. Similar results have been reported in other chronic diseases, with a greater reduction in BMD being reported in men with cystic fibrosis compared with women.1

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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References
1 Tattersfield AE, Town GI, Johnell O, et al. Bone mineral density in subjects with mild asthma randomised to treatment with inhaled corticosteroids or non-corticosteroid treatment over two years. Thorax 2001;56:272–8

AHR in asthma

Peat et al3 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,4 and we have shown that longer term repeatability of a free running exercise provocation test is poor within a childhood population.5 In adults quite considerable within subject variability in PD20 to methacholine has been observed during a 1 year period.6 A childhood population study found that methacholine PD20 varied by >4 doubling doses within the course of a year in 33% of the subjects.7

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 in asthma in a population of a number of researchers is another measure which may make it difficult to make useful comparisons between populations.

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References

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...
or other period of employment may well have led to the fatal cellular transformation, it was not possible to say which, and he was therefore unable to find either responsible. In coming to his judgement, Mr Justice Curtis made a distinction between causation and contributory negligence. In his words: “the only relevance of the number of fibres is in connection with the risk of contracting the disease”. He was thus dissuaded from being influenced by any evidence that might have shown a relationship between risk of mesothelioma and dose of asbestos, although there is much such evidence from studies both of human lungs and of animals.

The view expressed before that one fibre causes mesothelioma. It depends what you mean by “cause”: It is in one sense obvious nonsense. We all have millions of asbestos fibres in our lungs and the likelihood that requires a bit of thought. My Shorter Oxford Dictionary devotes a column to it.

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Mesothelioma
We write as the three medical witnesses who provided evidence (all in writing, two orally) to the Court in the case referred to by Professor Seaton. Essentially we agree with his analysis. The medical evidence presented to the Court made it clear that the risk of mesothelioma increases in relation to the dose of asbestos and that it is not possible to identify the particular fibre or fibres involved in the genesis of a particular mesothelioma. From an epidemiological standpoint it is therefore appropriate to regard all sources of significant exposure as having contributed to the causation of the disease, in the same way that all cigarettes smoked would be considered to have contributed to causation of a lung cancer.

Mr Justice Curtis, however, accepted the invitation of Leading Counsel for one of the defendants to adopt a strictly mechanistic approach to causation. He decided that, because the claimant could not show whether the fibre or fibres actually involved in the genesis of the tumour were derived from either of both of two sources of exposure, causation could not be established against either of the two defendants.

More recently, a different view has been taken in a similar case by Mr Justice Mitting (Queen’s Bench Division C2001011). He considered that there was “no substantial difference between saying that what the defendant did materially increased the risk of injury to the claimant and saying that what the defendant did made a material contribution to his injury”. It would be “wholly artificial to require a claimant to prove which fibre or fibres, inhaled in whose employment in precisely what circumstances, caused or set off or contributed to the process by which one or more mesotheliol cells become malignant”. He concluded that breach of duty on the part of both defendants caused the mesothelioma.

Both cases are soon to be considered by the Court of Appeal and the outcome will determine whether the many mesothelioma victims who happen to have derived their asbestos exposure from only one source are to be left without redress.

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Statement on malignant mesothelioma in the UK
We would like to provide the following additional material to Appendix 3 “Sources of information and help available for patients and carers” which appeared on pages 263–4 of the BTS statement on malignant mesothelioma in the UK published recently in Thorax.

The following Asbestos Support Groups are the major practical sources of information in the UK for people with asbestos related diseases. Most provide a drop in and telephone service, giving confidential free advice and support to patients and families. They also have particular expertise in the field of industrial injury benefits and government and civil compensation claims. Although most of the groups are in the north of England, telephone queries from any part of Great Britain are acceptable to them.

Manchester (tel: 0161 953 4037)
Sheffield (tel: 0114 236 1895)
Bradford (tel: 01274 393 949)
West Yorks (tel: 0113 243 9979)
Cheshire (tel: 01928 576641)
Nottingham (tel: 0115 927 5108)
In Scotland:
Claydese Action on Asbestos (tel: 0141 552 8852)
Clydebank Asbestos Group (tel: 0141 951 1009)

Other important sources of help and information are:
The Macmillan Mesothelioma Information Line (tel: 0113 206 6466; email: mavisro@ulth.northy.nhs.uk) and the Occupational and Environmental Diseases Association (OEDA), both of which were mentioned in the original statement.

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Asymptomatic pulmonary involvement in RA
Dawson et al found HRCT evidence of fibrosing alveolitis (FA) in 19% of 150 outpatients with rheumatoid arthritis (RA). The presence of FA did not relate to previously described predisposing factors such as male sex, nodular and/or extra-articular disease, disease duration and severity. Moreover, the authors did not find any relation with respiratory symptoms such as dyspnoea or cough, chest radiographic appearance of FA, or restrictive pattern at pulmonary function tests. The only finding significantly associated with FA on the HRCT scan were the presence of bibasal cracks and the reduction in carbon monoxide transfer factor (Tco).

www.thoraxjnl.com
We have recently investigated the presence of pulmonary disease in 24 consecutive patients with RA without respiratory symptoms or signs and a normal chest radiograph. In all these patients we performed a chest HRCT scan as well as complete pulmonary function tests (PFTs). Our patients were predominantly women (22/24), of mean age 49.4 years (range 26–72), and 46% of them had a disease duration of less than 2 years. Only 33.3% were current smokers. We found TLCO of <75% in half of them had RA of short duration. The other studies had shown a high prevalence of pulmonary alterations in patients with RA, even in recent onset RA. This difference may only be partly explained by patient selection: not all our patients had respiratory symptoms and almost half of them had RA of short duration. The newly available diagnostic techniques such as HRCT scanning have increased interest in evaluating patients with connective tissue diseases. However, the clinical relevance of the frequently observed pulmonary alterations in patients with RA has still to be elucidated, as well as the best diagnostic approach to respiratory involvement in this multifaceted disease.

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CD-ROM REVIEW

Paediatric Respiratory Examination


This CD-Rom has been produced as a multimedia based interactive learning tool for a wide spectrum of healthcare professionals including general practitioners, junior doctors, nurses, physiotherapists, and medical students. As such, it will find wide appeal to those who wish to learn or brush up on paediatric respiratory examinations.

The authors and designers should be congratulated for producing a CD-Rom which is highly intuitive and easy to navigate. The pictures, videos and case studies are of high quality and can be viewed with an informative running commentary, although unfortunately the commentaries cannot be fast forwarded or rewound to find passages of particular interest. The case studies provide excellent examples of classic paediatric auscultatory findings such as wheeze, stridor, and the fine inspiratory crepitations of bronchiolitis.

The Paediatric Respiratory Examination CD-Rom serves as a good template on which other system examination CD-Roms could be designed.

K Tan

NOTICE

Scadding-Morriston Davies Joint Fellowship in Respiratory Medicine 2002

This fellowship is available to support visits to medical centres in the UK or abroad for the purpose of undertaking studies related to respiratory medicine. Applications are invited from medical graduates practising in the UK, including consultants and irrespective of the number of years in that grade. There is no application form, but a curriculum vitae should be submitted together with a detailed account of the duration and nature of the work and the centres to be visited, confirming that these have agreed to provide the facilities required. Please state the sum of money needed for travel and subsistence. A sum of up to £15 000 can be awarded to the successful candidate, or the sum may be divided to support two or more applications. Applications should be sent to Dr I A Campbell, Secretary to the Scadding-Morriston Davies Fellowship, Llandough Hospital, Penarth, Vale of Glamorgan CF64 2XX, UK by 31 January 2002.

CORRECTION

In the article entitled “Influence of age and disease severity on high resolution CT lung densitometry in asthma” by Mitsuhashi et al which appeared in the November 2001 issue of Thorax (2001; 56:851–6), an error occurred in table 3 on page 854. The heading to the first column which appeared as “MLD (HU) (R² = 0.524)” should read “MLD (HU) (R² = 0.0524)”.

References