- 9 Thiagarajan P, Shapiro S S, De Mario L. Monoclonal immunoglobulin M. Coagulation inhibitor with phospholipid specificity: mechanism of a lupus anticoagulant. *J Clin Invest* 1980; **66**: 397-405.
- 10 Alving C. Immune reactions of lipids and lipid model membranes. In: Fela M, ed. *The antigens*. New York: Academic Press, 1977; 4: 1.
- 11 Cooper M R, Cohen H J, Huntley C C, Waite B M, Spees L, Spurr C L. A monoclonal IgM with antibody-like specificity for phospholipids in a patient with lymphoma. *Blood* 1974; **43**: 493-504.
- 12 Hirano T, Hashimoto H, Shiohara Y, *et al*. Antigliocolipid autoantibody detected in the sera from systemic lupus erythematosus patients. *J Clin Invest* 1980; **66**: 1437-40.

Correspondence

Metabolic bone disease in rheumatoid arthritis and osteoarthritis

SIR, Revell *et al.*¹ in their paper on the incidence of metabolic bone disease in rheumatoid arthritis and osteoarthritis state that they found evidence of osteoporosis in about a quarter of all patients and that osteoporosis was equally common among patients with osteoarthritis and those with rheumatoid arthritis.

However, in their paper they did not define 'histological osteoporosis', neither did they define the diagnosis of osteoarthritis. From the data mentioned in Table 1, i.e., youngest age in the female and male group of 26 years and three cases of ankle involvement in the osteoarthritis group, one can conclude that their osteoarthritis group is very heterogeneous, mixing secondary and primary osteoarthritis cases.

For establishing the diagnosis of osteoporosis the percentage trabecular bone volume (TBV) is a poor parameter. First of all the variability at the iliac crest is extremely high and may differ by 30% between adjacent samples and between samples taken at the right and left side in one individual.² Furthermore, the percentage total bone volume parameter is influenced by skeletal size: the taller the individual, the lower the percentage TBV. Below an age of 50 men have a lower percentage TBV than women.^{3,4}

Giroux, Courpron, and Meunier⁵ found a significant negative correlation between the width of the iliac crest and percentage TBV in age groups 15-29 and 30-80 years in men.

Since in osteoarthritis the skeletal size is increased, e.g. the periosteal diameter is significantly enlarged, it is not surprising to find a low percentage TBV at the iliac crest in osteoarthritis cases.⁶

Although bone histomorphometry is not good for establishing the diagnosis of osteoporosis, it is very useful for diagnosing osteomalacia and the bone remodelling stage.

We feel that the authors have insufficient evidence and even use anecdotal arguments to conclude that osteoporosis and osteoarthritis are not mutually exclusive. That

osteoarthritis defined as generalised osteoarthritis, and osteoporosis defined as fracture of the femoral neck and/or vertebrae, are separate entities that do not often occur together has recently been substantiated in several papers.⁷⁻⁹

Arthritis and Metabolic Bone
Disease Research Unit,
U.Z. Pellenberg,
B-3041 Pellenberg,
Belgium

ANNE VERSTRAETEN
JAN DEQUEKER
PIET GEUSENS

References

- 1 Ng K C, Revell P A, Beer M, Boucher B J, Cohen R D, Currey H L F. Incidence of metabolic bone disease in rheumatoid arthritis and osteoarthritis. *Ann Rheum Dis* 1984; **43**: 370-7.
- 2 Dequeker J. Problems in measuring the amount of bone: reproducibility, variability, sequential evaluation. In: *Bone histomorphometry*. Paris: Armour Montagu, 1977: 19-37.
- 3 Dequeker J, Remans J, Franssen R, Waes J. Ageing patterns of trabecular and cortical bone and their relationship. *Calcif Tissue Res* 1971; **7**: 23-30.
- 4 Dequeker J. *Bone loss in normal and pathological conditions*. Leuven University Press, 1972: 214 pp.
- 5 Giroux J M, Courpron P, Meunier P. *Histomorphométrie de l'ostéopénie physiologique sénile*. Monographie du Laboratoire de Recherches sur l'Histodynamique osseuse. Lyon, 1975: 166 pp.
- 6 Roh Y S, Dequeker J, Mulier J C. Cortical bone remodelling and bone mass in primary osteoarthritis of the hip. *Invest Radiol* 1973; **8**: 251-4.
- 7 Dequeker J, Goris P, Uytendaele R. Osteoporosis and osteoarthritis (osteoarthrosis): anthropometric distinctions. *JAMA* 1983; **249**: 1448-51.
- 8 Pogrund H, Rutenberg M, Mankin M, Robin G, Menckzel J, Steinberg R. Osteoarthritis of the hip joint and osteoporosis. *Clin Orthop* 1982; **164**: 130-5.
- 9 Price T, Reeve J, Mitchell R, Hesp R. Bone density in generalised osteoarthritis. *Ann Rheum Dis* 1983; **42**: 227-8.

SIR, Dr Verstraeten and her colleagues draw attention to limitations in the information about osteoporosis provided by our report. The main thrust of our study - as we made clear - was to determine whether there is an excess of osteomalacia or related metabolic bone disorder among

rheumatoid patients as had been suggested by others.¹⁻⁴ Our assessment methods were chosen for the purpose of answering a particular question and in the event, gave an unequivocal, albeit negative, result.

The information about osteoporosis was, in a sense, incidental, but nevertheless we believe valid. Our data clearly showed that a significant number of cases with rheumatoid arthritis and osteoarthritis had a trabecular bone volume (TBV) of less than 11%, the vertebral fracture threshold suggested as one method of defining osteoporosis.⁵ When this threshold was applied 13 osteoarthritic and 15 rheumatoid patients had osteoporosis. Thirteen biopsy specimens from rheumatoid patients and twelve from osteoarthritics were unsuitable for morphometry but were examined histologically by an experienced bone pathologist. Twelve out of 42 rheumatoid patients and 11 out of 40 osteoarthritic patients were judged to have osteoporosis. The pathologist's own threshold on this assessment corresponds to a TBV of around 9%. Our results, therefore, represent a conservative estimate of osteoporosis in these populations of arthritic patients, and the margin of error would allow for the 30% difference between samples and sites for trabecular bone volume found by Dequeker,⁶ though we would also point out that other investigators do not agree that there is such a large variability.⁷⁻¹¹

We are not able to respond to the point about the influence of skeletal size or our failure to discriminate between primary and secondary osteoarthritis except to state that the female and male patients with each type of joint disease were of comparable height. A good age match was also clearly achieved and was necessary because we believed that if we were considering such environmental factors as physical activity, sunlight exposure, and diet, it was important to have two closely comparable groups.

We do not wish to comment on the suggestion that osteoarthritis increases skeletal size, except to state that to the best of our knowledge this is applicable to generalised osteoarthritis and is not a factor in other forms of disease.

We are in no doubt that osteoarthritis and osteoporosis are separate entities and are aware of the evidence cited by Dequeker and others.¹²⁻¹⁴ One group¹⁴ reported increased bone density in generalised osteoarthritis but found no such change in other forms of osteoarthritis. Dequeker and colleagues¹² noted differences between women with osteoporosis and those with generalised osteoarthritis. Height was decreased compared with arm span in the former due to vertebral collapse. A similar, though lesser, reduction in height was present in generalised osteoarthritis but considered to be due to aging. We did not have the generalised disease in mind when referring to osteoarthritis and osteoporosis, neither do we believe that this is what is meant by those believing that the two diseases do not occur together. One study clearly shows both conditions occurring in the same patient and contains the clear statement that 'half of the subjects examined had radiological evidence of both osteoarthritis and osteoporosis of the hip and pelvis simultaneously'.¹³ Finally we were surprised to find osteoporosis in osteoarthritic patients as frequently as in those with rheumatoid arthritis. The fact that this was the case in a study which did not set out to look for

osteoporosis, and therefore was less likely to be biased, is, we feel, good evidence for our statement that osteoarthritis and osteoporosis are not mutually exclusive.

The London Hospital Medical College,
Arthritis and Rheumatism Council Building,
25-29 Ashfield Street
London E1 1AD

P A REVELL
K C NICHOLSON
M BEECHER
B J BOUCHER
R D COHEN
H L F CURREN

References

- Maddison P J, Bacon P A. Vitamin D deficiency, spontaneous fractures and osteopenia in rheumatoid arthritis. *Br Med J* 1974; **iv**: 433-5.
- Bird H A. Bone biopsy in the investigation of bone pain and fractures. *Rheumatol Rehabil* 1979; **18**: 38-42.
- O'Driscoll S, O'Driscoll M. Osteomalacia in rheumatoid arthritis. *Ann Rheum Dis* 1980; **39**: 1-6.
- Kennedy A C and Lindsay R. Bone involvement in rheumatoid arthritis. *Clin Rheum Dis* 1977; **3**: 403-20.
- Courpron P, Meunier P, Bressot C, Giroux J M. Amount of bone in iliac crest biopsy. In: *Bone histomorphometry*. Paris: Armour Montagu, 1977: 39-53.
- Dequeker J. Problems in measuring the amount of bone: reproducibility, variability, sequential evaluation. In: *Bone histomorphometry*. Paris: Armour Montagu, 1977: 19-37.
- Rasmussen H, Bordier P. *The physiological and cellular basis of metabolic bone disease*. Baltimore: Williams and Wilkins, 1974.
- Melsen F, Melsen B, Mosekilde L. An evaluation of the quantitative parameters applied in bone histology. *Acta Pathol Microbiol Immunol Scand [A]* 1978; **86**: 63-9.
- Melsen F, Melsen B, Mosekilde L, Bergmann S. Histomorphometric analysis of normal bone from the iliac crest. *Acta Pathol Microbiol Immunol Scand [A]* 1978; **86**: 70-81.
- Garner A, Ball J. Quantitative observations on mineralised and unmineralised bone in chronic renal azotaemia and intestinal malabsorption. *J Pathol Bacteriol* 1966; **91**: 545-61.
- Ellis H A, Peart K M. Quantitative observations on mineralised and nonmineralised bone in the iliac crest. *J Clin Pathol* 1972; **25**: 277-86.
- Dequeker J, Goris P, Uytendaele R. Osteoporosis and osteoarthritis (osteoarthrosis): anthropometric distinctions. *JAMA* 1983; **249**: 1448-51.
- Pogrand H, Rutenber M, Mankin M, Robin G, Menckzel J, Steinberg R. Osteoarthritis of the hip joint and osteoporosis. *Clin Orthop* 1982; **164**: 130-5.
- Price T, Reeve J, Mitchell R, Hesp R. Bone density in generalised osteoarthritis. *Ann Rheum Dis* 1983; **42**: 227-8.

Use of D-penicillamine in osteoarthrosis

SIR, Because osteoarthrosis is considered by some authorities to be an inflammatory disease and because cysteine, a compound of similar chemical structure, inhibits latent collagenase in synovial fibroblast culture, we have compared D-penicillamine with placebo in a small pilot study in osteoarthrosis.

Thirty patients with generalised osteoarthrosis (all with osteoarthrosis localised to the hips and knees, all with adequate radiological criteria, were allocated at random to D-penicillamine in a dose increasing to 500 mg daily