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Conference report

Assessment and treatment of bone disease

The fifth in a series of annual day conferences devoted to 'Growing points in the treatment of rheumatic diseases' was held in Harrogate on 3 May 1984. The organisers were Dr Howard Bird and Professor Verna Wright. The audience of 70 was a mixture of clinicians and basic scientists.

The first session concentrated on growing points in the assessment of bone. Dr Horsman (Leeds) reviewed the Barnett-Nordin ratio (cortical width over total width) which is derived from *x*-rays and compared this with photon absorptiometry and the use of rectilinear scanners in quantifying bone density. In contrast to these static physical assessments Dr Aaron (Leeds) reviewed bone histology, emphasising that bone was a dynamic, constantly changing organ. Histochemistry was likely to become increasingly important over the next 20 years. Discussion revolved around the extent to which histology or assessment at a single site mirrored changes occurring elsewhere in the skeleton and the extent to which the exact siting of equipment could be standardised, allowing sequential assessments to have some meaning.

Dr Nicoll (Edinburgh) discussed photon absorptiometry in more depth, emphasising the changes that could be recorded in the bones of normals, patients with rheumatoid arthritis, and patients with rheumatoid arthritis on drugs such as steroids. Dr Marshall (Leeds) then presented an elegant poster demonstration on quantitative histomorphometry. Preliminary observations on bone and joint changes in rodents by means of microfocal radiography were then demonstrated by Mr Cashin (Welwyn). A resolution as low as 5–15 μm could be obtained, and the method allowed the detection of bone changes in rats following chronic treatment with drugs such as etretinate. The reproducibility of *x*-ray densitometry for the assessment of change in periarticular bone was then re-evaluated in a paper by Dr Dark (Manchester).

Vitamin D metabolism

The afternoon session concentrated on more clinical aspects. Dr Kanis (Sheffield) reviewed clinical and physiological aspects of vitamin D metabolism in man. He emphasised the relative importance of 1,25 dihydroxy D3 and 24,25 dihydroxy D3. His description of a marked seasonal variation in calcium and vitamin D metabolism (whether measured as urinary excretion of calcium or as bone mineral content of the spine) provoked a lively discussion.

Dr Capell (Glasgow) described two patients with Engelmann's disease. This progressive diaphysial dysplasia is inherited as a rare autosomal dominant condition. Both patients had gone on to develop an antinuclear factor positive connective tissue disorder associated with peripheral vasculitis. One patient had died from a splenic infarct. In discussion, the difficulty of distinguishing Engelmann's disease from hypophosphatasia was noted.

The two following papers both demonstrated the application of in-vivo neutron activation analysis in the assessment of bone changes in rheumatoid arthritis. Dr Reid (Edinburgh) compared the effects of oral calcium, suppressive antirheumatic drugs, and oral corticosteroids on bone mass in rheumatoid arthritis. The disease was associated with significant bone loss and this was not reduced by oral calcium or suppressive antirheumatic drugs. Although there was an initial loss when patients were treated with steroids, this loss was not sustained with continued therapy. Dr Bird (Harrogate) described a controlled trial of nandrolene decanoate in rheumatoid arthritis. The drug had not produced any significant clinical or biochemical changes, but a significant improvement in the anaemia of rheumatoid arthritis had been observed. No increase in total body calcium occurred as a result of the use of this anabolic steroid over a two-year period.

Bone turnover

The effect of sex steroids on bone was reviewed by Dr Selby (Leeds). Ethanyloestradiol and norethisterone had comparable effects on bone turnover. They were not regulated by calcium regulating hormone and might therefore act directly on bone.

Two papers then reviewed the treatment of Paget's disease. Dr Gray (Sheffield) reviewed a variety of laboratory assessments that can be used to monitor the activity of this condition. He felt diphosphates were effective agents. New analogues

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were likely to have fewer side effects than EHDP. The Leeds experience in the treatment of Paget's disease was reviewed by Dr Gibbs. Calcitonin was significantly more expensive than the only oral diphosphonate currently available. EHDP in a dose of 5 mg/kg/day appeared to be ineffective but in a dose of 20 mg/kg/day the drug was effective but also led to reduced mineralisation, causing osteomalacia.

Finally Dr Hordon (Leeds) described the use of isotopic bone scanning to detect 'hot spots' over crush fractures of the spine. Half of such fractures could be confirmed by the presence of hot spots irrespective of how long the fracture had been present.

It is hoped to hold the sixth conference in this series on the first Thursday in May 1985.

Correspondence

Osteosclerosis and new bone formation in young onset and late onset rheumatoid arthritis according to rheumatoid factor seropositivity

SIR, We have recently carried out a radiological survey of hand damage in young onset rheumatoid arthritis (YORA) and late onset rheumatoid arthritis (LORA).[1] We have selected patients on the basis of their disease onset before and after 65 years of age. Seventy-two patients (38 YORA, 34 LORA) were analysed according to the persistent seropositivity (or seronegativity) for rheumatoid factor (RF). We have observed, as expected, that RF positive patients had significantly greater *x*-ray damage in the carpal-wrist, metacarpophalangeal, and proximal interphalangeal joints than RF negative ones in the YORA group. The same was not true for LORA patients, who showed the same degree of *x*-ray damage, according to Berens and Lin's modified criteria[1] either in seropositive or seronegative groups.

Recently Burns and Calin[2] suggested some radiological features that differentiate seronegative from seropositive rheumatoid arthritis. Following their criteria we re-examined the hand *x*-rays of YORA and LORA patients. The following results were obtained:

		RF+	*RF−*	
Osteosclerosis	LORA	23·5%	29·4%	NS
	YORA	28·6%	58·8%	NS
Classical erosions	LORA	47·1%	41·2%	NS
	YORA	42·8%	5·8%	$p<0·05$
Global symmetry	LORA	94·1%	94·1%	NS
	YORA	100%	100%	NS
New bone formation	LORA	58·8%	76·5%	NS
	YORA	42·8%	70·6%	NS
Fusion	LORA	17·6%	11·6%	NS
	YORA	14·3%	5·8%	NS
Carpal predominance	LORA	35·3%	41·2%	NS
	YORA	57·1%	52·9%	NS

The mean disease duration was similar in seropositive and seronegative LORA (6·2±0·8 yr vs. 6±1·2 yr) while seropositive YORA were older than seronegative ones (6·5±0·78 yr vs. 5·3±0·92 yr: $p<0·05$). Among patients with rheumatoid arthritis lasting longer than two years (46 cases) irrespective of the age onset, osteosclerosis and new bone formation were found in a significantly higher percentage in RF negative patients (χ^2 6·33, $p<0·05$, and χ^2 5·08, $p<0·05$, respectively). The other *x*-ray features did not discriminate between groups.

In conclusion we believe that among the radiological features suggested by Burns and Calin only osteosclerosis and new bone formation help to distinguish between seropositive and seronegative rheumatoid arthritis. Several interfering variables like age onset of the disease, disease duration, and of course second line drug treatment should be taken into account when studying rheumatoid patients for *x*-ray changes, damage, and progression.

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References

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2 Burns T M, Calin A. The hand radiograph as a diagnostic discriminant between seropositive and seronegative rheumatoid arthritis: a controlled study. *Ann Rheum Dis* 1983; **42:** 605–12.

SIR, I appreciate the opportunity to comment on the letter of Professor Ferraccioli and colleagues. These authors conclude that they found the degree of osteosclerosis and new bone formation helpful in differentiating seropositive from seronegative 'rheumatoid arthritis'. In addition in patients with disease onset below the age of 65 they described a significantly greater number of classical erosions in individuals who were seropositive for rheumatoid factor compared to those who were seronegative. As they rightly point out, there are numerous variables that can interfere with data of this type. Even if one does control all the factors mentioned, one has then to consider the effect of occupational activity, sex, physiotherapy, and other variables. Inevitably these and other factors will explain differences that result from studies of this type. When we performed a comparable investigation at the

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