Is patient anxiety about osteoporosis sufficient indication for measuring bone mineral density ?

Sirs,

Identifying individuals at risk of an osteoporotic fracture is a public health priority (1, 2). Although, in the absence of a previous fracture, bone densitometry is the single best predictor of future fracture risk (2), it remains a restricted service in many areas, and inappropriate patient referral can overload this scarce resource. Cannock Chase Hospital in the English Midlands provides a bone densitometry service to a catchment population close to 500,000. A common reason prompting referral to our unit has been the patients' own anxiety that they might have osteoporosis. We suspected that this did not represent a good indication for referral for bone densitometry.

Over six months, 43 subjects (all female) representing about 10% of referrals, entered this study because their referral letter stated that their referral was prompted by their anxiety that they might have osteoporosis (in these or equivalent terms). Significant risk factors for osteoporosis, such as a history of fracture, corticosteroid use, early menopause or a family history of osteoporosis, were sought when the patient attended. Bone mineral density (BMD) was measured in the femoral neck and lumbar spine using our Lunar DPX or Expert-XL bone densitometers. T-scores (BMD expressed in standard deviations (SD) from young adult mean) and Z-scores (BMD in SD from mean of age/sex matched peers) were calculated with reference to the manufacturer's database of normal values.

Results of BMD measurement, with T- and Z-scores, are detailed (Table I). Femoral neck BMD was higher than expected in most subjects: compared to their age-matched peers, 27 (63%) subjects had a femoral neck BMD result which was above average for age (Z-score ≥ 0.0). In only 2 individuals was the femoral neck Z-score < -1.0 and only 11 subjects had a lumbar spine Z-score < -1.0. Overall, only 8 (19%) individuals had osteoporosis (defined by WHO criteria, T-score < -2.5) at either site (3). However, in each of these subjects there were significant risk factors for osteoporosis identified which should have prompted referral for bone density measurement in their own right. A further 5 subjects had marked osteopenia (T-score < -1.9): all bar one of these had significant risk factors for osteoporosis and the final patient was already receiving hormone replacement therapy. No osteoporosis was identified in any subject where personal anxiety about osteoporosis was the sole reason for bone density measurement.

This small study demonstrated that, in the absence of significant risk factors for osteoporosis, individual anxiety that they might have osteoporosis was a particularly poor marker for reduced bone density and seemed, if anything, to identify subjects with above average bone density. Perhaps it continues to be an important role for the clinician to allay anxiety in their patients. In the case of osteoporosis, this can be done simply and safely although by no means inexpensively. Perhaps allaying anxiety in this way serves the greater 'public good' by increasing awareness about osteoporosis, which represents one of the main obstacles to progress in successfully tackling this silent epidemic. Perhaps these results suggest that where a patient is anxious about osteoporosis, we should identify any reasons underlying their anxiety which might prompt further evaluation. As public awareness of osteoporosis, its consequences and its treatment increases, there follows increased pressure on clinicians to provide reliable identification of those at risk as long as BMD measurement is a finite resource. High quality referral of appropriate patients would optimise the use of available bone densitometers, providing more effective assessment of this major public health problem.

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Table I. Bone mineral density, T-scores and Z-scores in the lumbar spine and femoral neck of individuals concerned that they might have osteoporosis.

	Lumbar spine*		Femoral neck*	
Bone mineral density (g/cm^2)	l.05	(0.67 – 1.70)	0.91	(0.69 – 1.30)
T-score	-1.26	(-4.50 – +4.15)	-0.50	(-2.42 – +2.60)
Z-score	-0.31	(-2.90 – +5.43)	0.39	(-1.30 – +3.40)

* Results are medians (range).

References

1. Advisory Group on Osteoporosis: Report. London, Department of Health, 1994.
2. Royal College of Physicians: Osteoporosis. Clinical guidelines for prevention and treatment. London, Royal College of Physicians, 1999.
3. World Health Organization: Assessment of fracture risk and its application to screening for postmenopausal osteoporosis. Technical report series 843. Geneva, World Health Organization, 1994.

Arthritic reactions following hepatitis B vaccination: An analysis of the Vaccine Adverse Events Reporting System (VAERS) data from 1990 through 1997

Sirs,

Hepatitis B vaccine, a highly purified, genetically engineered, single antigen vaccine is generally accepted within the scientific and medical community as a safe vaccine. However, Gross and colleagues, Vautier and Carty, Bracci and Zoppini, and Grotto and colleagues, have all reported arthritic reactions following hepatitis B vaccination (1-4).

To further investigate possible arthritic reactions to hepatitis B vaccination, we obtained a certified copy of the Vaccine Adverse Events Reporting System (VAERS) database from 1990 through 1997 from the Centers for Disease Control, (CDC), in Atlanta, Georgia, which we used to conduct an in-depth search into arthritic-type reactions reported following hepatitis B vaccination.

Table I tabulates the 3 major types of arthritic reactions: arthralgia, arthritis, and athrosis, reported to the VAERS database in association with hepatitis B vaccination. There were more of each of these 3 arthritic reaction types associated with hepatitis B vaccine than with any other vaccine. The data shows that the majority of patients having arthritic reactions following hepatitis B vaccine are female (female/male ratio = 3.5 to 1). This female to male ratio fits the pattern often observed in autoimmune disorders. Most of the arthritic reactions occur in patients in their thirties and most occur within 2 days of receiving a hepatitis B vaccination.

The prediction, both from the vaccine design and the early clinical trials on hepatitis B vaccines, that this type of vaccine would be well tolerated and result in few adverse reactions is not borne out by our analysis of the