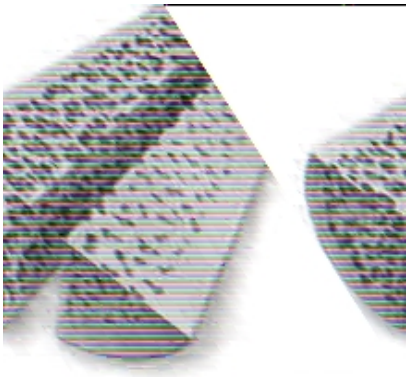


BONE DENSITY & OSTEOPOROSIS:

An Update for Manitoba Physicians

No. 1: January 29, 1999

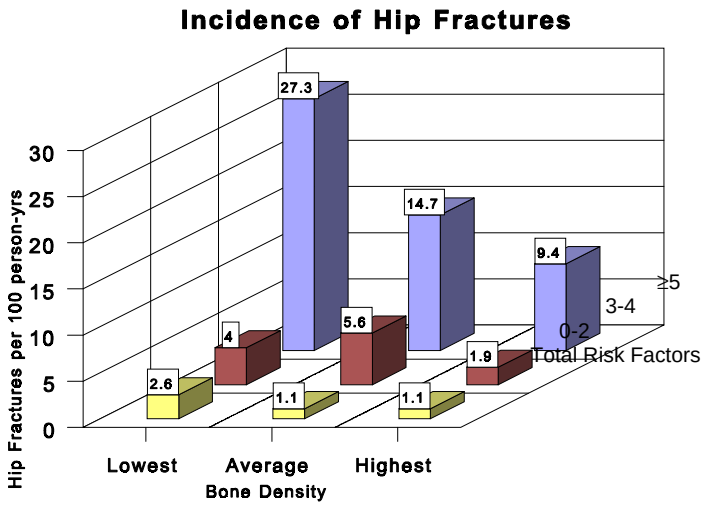
Re: BONE DENSITY TESTING IN LOW-RISK POSTMENOPAUSAL WOMEN

What is the Manitoba Bone Density Program. This is a subprogram of Diagnostic Imaging assigned the task of developing clinical protocols for bone density measurement which would "clearly define situations in which bone density measurements are appropriate, inappropriate or unproven" and to "define the optimal time of initial and/or follow-up measurements". It has broad representation from medical practitioners and other health care specialists. No less important is its role to "act as an educational resource for the public, for specialist and non-specialist medical practitioners, and for allied health personnel". We hope that his newsletter will successfully address the latter.

After reviewing the scientific and clinical evidence supporting the use of bone densitometry, several indications for testing were identified which could be supported from the published scientific data. These indications are defined in the recently revised "Bone Mineral Density Requisition" that must be used for all such test requests (available from the Department of Nuclear Medicine at the St. Boniface General Hospital, 237-2756).

Why did the Committee take the position that a "Total Risk Factor Score" be used as the basis for testing otherwise healthy, postmenopausal women? To set things in context, mass screening is currently not endorsed by the Scientific Advisory Board of the Osteoporosis Society of Canada (CMAJ 1996;155:1113). A recent report from the British Columbia Office of Health and Technology Assessment even went so far as to state that "research evidence does not support either whole population or selective bone mineral density (BMD) testing of well women at or near menopause as a means to predict future fractures". This position differs from other bodies advocating a targeted approach to testing.

The unspoken dilemma is how to identify those women who are at substantially increased risk. Currently the best source of data comes from the on-going Study of Osteoporotic Fractures (SOF) which has been prospectively following over 9,700 post-menopausal women to determine the clinical and laboratory measures that best predict fracture (NEJM 1995;332:767). This study clearly demonstrated the important and *independent* predictive power of clinical risk factors as determinants of susceptibility to hip fracture. When



there were few clinical risk factors then hip fractures were uncommon, even among women with low bone density.

The following point cannot be overstated: *the interaction between bone density and many clinical risk factors is independent*. This offers a rational and efficient way to target bone density testing towards women at greatest risk and in whom bone density testing gives the greatest risk stratification. In retrospect, the findings of SOF are not unexpected since many of the clinical risk factors that were identified are predictors of falling, an integral (but frequently overlooked) component in the fracture susceptibility equation. With some modifications, this is the basis for the scoring method that has been adopted for Manitoba. Undoubtedly, this is not the final word and we all look forward to broadening the evidence-base that supports good medical practice. Canadian physicians can look forward to the Canadian Multicenter Osteoporosis Study (CAMOS) which will provide important data on Canadians.

What can you say to an otherwise healthy, postmenopausal woman who does not have other identifiable risk factors for osteoporotic fractures? First and foremost, she should understand that bone density testing has not been demonstrated to be a strong hip fracture predictor in low risk individuals. In this setting the value of hormone replacement therapy (HRT) is determined by risk factors for cardiovascular disease and breast cancer, neither of which can be measured with bone densitometry. Although a normal bone density measurement may be reassuring from the perspective of osteoporosis, in the low risk individual this may actually be misleading since cardiovascular disease is the major enemy. An extensive cost-benefit analysis of HRT from the US Office of Technology Assessment concluded that HRT in post-menopausal women was cost effective (approximately $US 25,000 per life-year gained) but that the benefit was identical whether or not bone density testing was used to target therapy. In fact, using bone density to target women at greater risk for fracture reduces the overall population benefit that occurs through preventing cardiovascular events. If HRT is ultimately found not to be cardioprotective (a plausible scenario given negative findings from the recently published HERS study, JAMA 1998;280:605) then the cost-effectiveness of HRT is considerably worse (over $US 400,000 per life-year gained). There is good evidence that anyone concerned about osteoporosis should adopt specific lifestyle measures independent of any bone density value, including: maintaining an adequate level of calcium and vitamin D intake; maintaining weight-bearing exercise; avoidance of smoking, excessive alcohol or long-acting sedatives; wearing safe footwear; and modifying homes to eliminate loose rugs or dark hallways.

Ultimately the Bone Density Program Committee recognizes that some patients and physicians will disagree with its position. Controversy is inevitable where scientific data is incomplete. There is room for differences of opinion and for individualizing guidelines. Therefore, the Committee has always indicated that “indications other than those identified may be considered if appropriate clinical justification is provided”.

From the Manitoba Bone Density Program