Osteoporosis: how accurate and valid are the Medical DEXA scans that doctors use to supposedly " predict" our future risks for breaking a bone?

Here are FOUR short articles, siting various studies and research worth reading. These were all from a magazine I have subscribed to for over 30 years WDDTY or What Doctors Don't Tell You

A type of X-ray scan already being widely used to test for osteoporosis is proving to be very unreliable, doctors in London and Cambridge have discovered

Dual-energy X-ray absorptiometry (DEXA) uses two X-ray beams to test for levels of fat, lean tissue and bone mineral in the body.

But when doctors from St George's Medical School in London and Dunn Clinical Nutrition Centre in Cambridge carried out scans on the same six patients at different locations, the findings on fat and lean tissue mass were wildly different.

The manufacturers could find nothing wrong with the two machines, a conclusion backed up by the fact that the bone mineral measurement was almost the same each time.

One patient was given three other scans to try and discover the discrepancy, and the readings were again very different each time (The Lancet, September 30, 1995).

Currently, most screening systems measure bone mineral density (BMD). Susan Ott, associate professor at the University of Washington in Seattle, has warned of high levels of imprecision in screening systems and multiple measurement techniques, which is particularly worrying when women are using the results to decide whether or not to take HRT. In addition, Ott argues that since bone density and bone strength aren't necessarily related, there may be no point in measuring BMD (BMJ, April 9, 1994).

However, even if BMD were an indicator of bone strength, changes are not usually reversible, and very low density might be detected too late for most effective interventions (BMJ, Jul 22 1995).

An earlier study concluded that BMD measurements are a poor screening test for future hip fracture. It found that among all women screened, thr group at highest risk had less than half the fractures over a nine-year peril (Ann Intern Med, 1986; 104:817-23).

A large review of published work on BMD screening has concluded that BMD screening has never been shown to be effective in preventing osteoporotic fracture. Measurements vary at different times and with different equipment, and BMD varies very little between the groups who will and won't go on to suffer fracture (Bristol: Health Care Evaluation Unit, University of Bristol, 1992.)

The majority opinion from North America and the UK is against random screening. Nevertheless, measuring bone mass may be an important tool in the diagnosis of osteoporosis in high-risk groups and for monitoring some patients (BMJ, June 10, 199S). If you get a low reading, it might be a good idea to get a second opinion and also to check the age of the equipment and the experience of the operator.

Safety-wise, DEXA, the most widely used system, uses lower doses of radiation than single-photon absorptiometry (SPA), dual-photon absorptiometry (DPA) and quantitative computed tomography (QCT). The average skin exposure for DEXA is I to 3 mrad per scan (compared to 8-10 mrads for chest x-rays, for example). QCT uses the highest radiation dose

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The widely held view that women suffering from low bone density are more likely to suffer a fracture doesn't stack up. New research shows that only half the people considered to be at most danger from a fracture because of their reduced bone density

Despite this, the UK government's Department of Health is pressing for more screening of women through bone densitometry tests.

In a criticism of a recent report from the Advisory Group on Osteoporosis, Prof Trevor Sheldon from the University of York, asks: ". . .whose interest will best be served by recommending the increased purchase of bone densitometry. . . the general public or the equipment and pharmaceutical suppliers?"

The advisory group has recommended that bone densitometry should be used for testing patients likely to have low bone mass, such as women going through the menopause

The decrease in bone density that accompanies aging is only a small factor in the greatly increased risk of hip fracture in older life, researchers have discovered.

This finding calls into question one of the supposed greatest benefits of HRT, whose proponents claim it offers protection against osteoporosis, which is a progressive deterioration of bone density.

Doctors had always assumed that bone density which usually starts to decline in women after the menopause was associated with the risk of fractures, which increases exponentially among the elderly.

But researchers from the Erasmus University Medical School in Rotterdam found that, while the risk of hip fracture increased 13 fold in both men and women aged between 60 and 80, bone density levels played a minor part in increasing the risk.

The researchers also found that the risk of hip fracture was as great among men as women, whereas it had been believed that women were at greater risk (BMJ, 1997; 315: 221-5).

Another alleged benefit of HRT that it protects against heart disease has also been refuted by a team of researchers in the biggest study to date of HRT's effect on the heart.

They studied 22 trials, involving 4124 women, and found there was very little difference in the rate of heart disease between those women taking HRT and those who were not. The analysis was carried out by the National Research and Development Centre for Welfare and Health in Helsinki, Finland (BMJ, 1997; 315: 149-53).