



The weaker link

Over the past 18 months, more than one-and-a-half-thousand thermographic breast scans have been performed at the Irish Centre for Integrated Medicine (ICIM), where I practice in Ireland. These scans—which look for signs of early blood-vessel formation—are often coupled with a bone sonometry test, which uses ultrasound to measure the condition of the bones, especially in terms of the risk of fracture.

Surprisingly, what we have observed at the ICIM is that women who have a medium to high risk of bone fracture also appear to have a low risk of developing breast cancer.

In fact, our results have been supported by similar observations made in a groundbreaking study led by Dr Jane Cauley, of the University of Pittsburgh Medical Center (*J Natl Cancer Inst*, 2001; 93: 930-6).

In this investigation, Dr Cauley and her team followed the health histories of 8905 women, who were aged 65 years or older, and without breast cancer. They discovered that older women who have a low bone mass also have a significantly decreased risk of breast cancer.

On the other hand, a higher bone density, they found, is associated with an increased risk of breast cancer. After six years, the women who scored highest on three different bone mineral-density tests—involving the bones of the wrist, arm and heel—were found to be more likely to develop breast cancer.

During the six-year study period, a total of 315 women (3.5 per cent) developed breast cancer. After adjusting for other risk factors that contribute to breast cancer (age, sedentariness and obesity, for instance), the investigators found that the risk to women with the highest bone density for all three skeletal sites was 2.7 times greater than it was for women with the lowest bone-density measurements at those three sites.

The researchers concluded that “bone mineral density is one of the most powerful predictors of breast cancer . . . among elderly women.”

So what does all of this mean?

Bone density *per se* is not likely to cause breast cancer but, rather, it may be an indirect measure of the relevant hormones, such as testosterone, sex hormone-binding globulin (SHBG) and estrogen, which have all (in varying ways) been linked to both abnormal bone density and to breast cancer.

Bone mineral density may be an accurate marker of the body's response to estrogen. Women with higher bone densities are thought to be either physiologically more sensitive to the hormone's effects, or they are simply being exposed to a greater supply of estrogen than women who have lower bone densities.

What's more, as estrogen has also been linked to breast-cancer risk, researchers have sought to determine

whether bone density might also help to predict the risk of breast cancer in older women. Estrogen, for example, is known to play a role in breast cancer because women who begin menstruating at an early age, have their menopause later than average, or remain childless all have greater exposures to the hormone—and, consequently, a greater risk of breast cancer. In addition, women with a history of constipation also have an increased chance of accumulating excess levels of estrogen.

Felipe Reitz, the CEO of ICIM, believes that a bone-density test (such as radiation-free bone sonometry) should, in the near future, play an indispensable role in breast cancer-risk assessment, alongside the thermographic scan (which is also free of radiation).

“There is now good evidence that suggests an inverse association between osteoporosis and invasive breast cancer, two of the most prevalent conditions affecting older women's health,” he says.

There is, it would appear, good reason to believe that measuring bone densities will soon become a routine part of breast cancer diagnostic screening.

According to the latest figures published by the National Cancer Forum in the Republic of Ireland in 2006, breast cancer represents 8 per cent of the annual total number of new cancer cases. It is predicted that this figure will double by 2020.

The ICIM shares the same goals adopted by the Health Service Executive (HSE) as regards promoting health and preventing cancer by embracing early-detection screening of breast cancer through diverse means. The Irish National Cancer Strategy states that early detection is an approach that promotes vigilance for the signs and symptoms that may be early indications of disease. This is based on the premise that it is easier to treat and cure the cancer if it's detected early—before it has had a chance to spread—and remains our best strategy for reducing cancer deaths at this time.

The current statistics show that 400,000 people in Ireland suffer from osteoporosis. Women constitute a major proportion of that overall statistic, as 40 per cent of those over the age of 50 will suffer from osteoporosis at some point in their life. But catching potential victims early can be difficult as, in most cases, both bone-thinning and breast cancer are slow, silent and asymptomatic.

A drive towards the use of the two screening modalities—bone sonometry and breast thermography—could be an important step towards decreasing cancer statistics by the year 2020. The advantages of combining the scans into one screening test, as adopted by the ICIM, is beginning to have a significant impact on the time-pressured lifestyles of today's Irish women.

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