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Blog RSS

Screening Mammography Controversies, What's a Woman to Do?

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In women's health, nothing is quite as confusing and bustling with controversy as the role of screening mammography in low-risk women and its presumed reduction of mortality from breast cancer. Regular screening mammography is promoted as an early detection test, conducted in an attempt to diagnose breast cancer early, treat it early, and thus reduce mortality from breast cancer. The practice is based on the presumption that mammograms detect breast cancers that are smaller than those detected by physical breast exams, meaning they can be detected sooner on average than clinically palpable breast cancers. This "early detection" confers better prognosis than later detection of larger tumors. However, avoiding breast cancer–related deaths is not the only outcome to consider. Two other outcomes need attention as well: false

alarms and over diagnosis. According to a recent review in *JAMA Internal Medicine* by Welch and Passow, "Among 1,000 US women aged 50 years who are screened annually for a decade, 0.3 to 3.2 will avoid a breast cancer death, 490 to 670 will have at least 1 false alarm, and 3 to 14 will be over diagnosed and be treated needlessly."[i]

According to randomized trials conducted from the 1960s to the 1980s, screening mammography reduced breast cancer mortality.[ii] A significant insight into these studies is the plausibility that screening mammography was more effective in the past when breast cancer treatments were less effective. Researchers with this perspective point out, "If women with new breast lumps now present earlier for evaluation, the benefit of screening will be less. If clinically detected breast cancer has now improved, the benefit of screening will be less."[iii] They also point out that these randomized trials occurred before 1990, and since then we no longer have randomized trials but observational studies in the United States.

There has been much debate about the benefit versus harm of mammography in the last few years, especially since the United States Preventive Services Task Force (USPSTF) guidelines were published in 2009.[iv] USPSTF guidelines differed from the major advisory groups on this subject (i.e., the American College of Obstetrics and Gynecology [ACOG], the American College of Radiology [ACR], the American Cancer Society [ACS], and the Susan G. Komen Foundation). I'll discuss those differences in a moment.

The controversy swelled up recently with the publication of the Canadian National Breast Screening Study and its findings from 25 years of follow-up in a screening mammography trial.[v] It was initiated in 1980 and included almost 90,000 women ages 40–59. All the women received baseline mammograms. Women aged 40–49 were randomized to 5 annual mammograms plus annual breast exams or to usual care. Women in the 50–59 age group were randomized to 5 annual mammograms plus breast exams or to only annual breast exams. Over the next 25 years, approximately the same number of incidences of and deaths from breast cancer occurred in each group. In short, annual screening mammography in women aged 40–59 did not reduce mortality from breast cancer any better than physical exam or usual care (when access to adjuvant therapy for breast is free and available via the Canadian healthcare system). In addition 22% of screening detected cancers (106/484) represented over diagnosed breast tumors.

This Canadian study is not the only study that has cast doubt on the value of

screening mammography. Other findings in the last few years have revealed similar findings. These include the Kalager et al study in Norway,[vi] the Mandelblatt et al study,[vii] and the Atelier et al study.[viii] In 2012, Bleyer and Welch published a large analysis of 3 decades of screening mammography and breast cancer incidence using Surveillance, Epidemiology and End Results (SEER) data to examine data from 1976 through 2008. They concluded that yes, there were substantial increases in the number or cases of early-stage breast cancers detected through screening mammography, but it only slightly reduced the rate at which women presented with advanced breast cancer – suggesting that there is substantial over diagnosis of approximately one third of the cases. They also concluded that, at best, screening had only a small effect on the rate of death from breast cancer.[ix] In a 2011 publication of Swedish data based on 3 decades of follow-up, major benefits of screening were observed, with a 31% lowered risk of breast cancer mortality in the screening group; however, the number of women needed to screen for 7 years to prevent 1 breast cancer death was 414.[x] Then in 2012, another Swedish study was published and looked at data from the Swedish Board of Health and Welfare from 1960 to 2009 to analyze the trends in breast cancer mortality in women 40 and older, by country. [xi] These researchers compared the actual mortality trends with the theoretical models. They expected that screening would be associated with a gradual reduction in mortality, especially because Swedish mammography trials and observational studies have suggested that mammography leads to a reduction in breast cancer mortality. However, what they found was that breast cancer mortality rates in Swedish women started to decrease in 1972, which was before the introduction of mammography, and that breast cancer mortality rates continued to decline at a similar rate to the rates prior to the institute of screening. In other words, the downward trends of breast cancer mortality in Sweden continued as if there were no screening at all. These findings are consistent with other studies that show limited or no effect of breast cancer screening on breast cancer mortality.

In his stunning NEJM editorial after the Kalager, et al Norwegian study, 6 Gilbert Welch concluded an even more alarming mathematical calculation, that it would take screening 2,500 women every year over a 10 year period to avoid 1 death from breast cancer.3 These studies collectively have contributed greatly to the ongoing debate over the risk and benefit of screening mammography.

Analyzing the Pros and Cons

I have found it extremely useful to read the critiques of the Canadian study. The first point of contention is that the Canadian study dates back to a time when women had more primitive mammograms. Between 1980 and 1984, the technology and equipment were limited and mammograms could only detect 30% of breast cancers. Mammography today is in the range of being able to detect 70% to 80% of breast cancers. You can see the problem. Yes, the Canadian study is a randomized controlled study, and over 25 years, but it's generated by technology from 34 years ago. Another critique is that the study was not truly randomized in that nurses and doctors preferentially put the patient into the mammography arm when a breast lump/mass was detected.

Critics of any conclusion other than an endorsement of screening mammography starting at age 40 also point out that many of the editorials and analyses of benefits and risks are based on calculations and numerical predictions rather than actual studies. They [the American College of Obstetrics and Gynecologists (ACOG), the American Cancer Society (ACS), the American College of Radiologists (ACR) and the Susan Komen Foundation, and many clinicians and surgeons amidst those groups] insist we look at the actual studies, randomized and observational, that conclude that screening mammograms saves lives (i.e., early detection—and thus earlier treatment—leads to fewer deaths from breast cancer). Others point out that in fact there has not been a randomized trial in the United States on this subject for about 50 years, and again, the earlier randomized trials showing benefit also occurred when there were less effective treatments and less awareness of breast cancer and exams.

I won't be surprised if you are confused, even with this attempt at reducing a vast amount of complicated and contradictory data into a hopefully simplified discussion.

The most important thing for patients and clinicians is to try to be aware of the controversies and different recommendations, despite every advisory group looking at the exact same data and numbers.

Here are the 2009 USPSTF recommendations:

- No universal screening mammography for women ages 40–49 and urging an individualized, informed decision making process based on specific benefits and harms
- Biennial screening mammography for women ages 50–69
- Screening extended to women between 70 and 74

- Insufficient evidence to assess the benefits and harms of screening mammography in women 75 and older
- Insufficient evidence to assess the benefits and risks of clinical breast exams in women aged 40 years and older who undergo mammography, digital mammography, and MRI versus film mammography
- Teaching self-examination is harmful and not recommended
- These recommendations do not apply to women who are at excess risk for breast cancer due to known genetic mutations or histories of chest radiation

The key ACOG, ACS, ACR, and Komen Foundation guidelines for screening mammography in low-risk women are as follows:

· Screening mammograms starting at age 40 and annually thereafter

· Clinical breast exams yearly for ages 40 and older

· Clinical breast exams every 1–3 years for women 20–39 years of age

It is especially challenging to clinicians and to patients when these multiple organizations come out with conflicting studies, data, and recommendations. For those who recommend a reduced screening program, they argue that screening, in low risk women, does not improve the death rate from breast cancer, and that there are too many call back additional mammograms and then too many biopsies that are in fact normal. In addition, there are many cancers that would actually have never caused death and the timing of detection and treatment and survival does not matter whether you detect it early before a lump is detected or later after a lump is actually felt. Those who continue to advocate for regular screening assert that we cannot adequately predict who has a non-lethal vs. lethal breast cancer and they assert that no matter the false positives and extra procedures and cost, treating breast cancer as early as possible is the best way to improve survival. And if survival statistics are maybe modest at best, oncologists and surgeons in particular, assert that seeing women later in the process, with later stage breast cancers, may require more extensive surgical treatment and more extensive chemotherapy than would have been otherwise needed.

So, what's A Woman and her Clinician to Do?

When speaking with patients, I let them know that there are 4 camps regarding screening mammography that differ greatly:

Camp 1 is the dominant school of thought held by organizations including

ACOG, ACR, ACS, and Komen Foundation. They all recommend screening mammography yearly starting at age 40 and ending approximately mid-70s, although this is based on individual health and ability to withstand treatment regimens.

Camp 2 is held by the USPSTF, which is quite a bit different with screening mammography. This recommendation is not to start mammography screening in low-risk women until age 50, and then to do it every other year.

Camp 3 is a model common in many European countries: screening mammography every 3 years, some starting at age 40 and others at 50. There is no evidence that countries using this model have any higher rates of breast cancer mortality than countries that employ more frequent screening.

Camp 4. No screening at all in low-risk women, based on calculations from one of the leading U.S. researchers on analyzing screening mammography data. As mentioned earlier, his conclusions are that it would be necessary to screen 2,500 women every year for 10 years to avoid 1 death from breast cancer.[3]

I also point out a few caveats to my patients. The first is that the current scientific data do not explain whether avoiding screening mammograms (and their potential for earlier detection) will result in exposing women to more aggressive treatments and the ensuing impacts on quality of life and adverse effects. The second is that breast cancer diagnosed in younger women, ages 40–49, tends to be more aggressive. So screening mammography in this age group might in fact be more important than screening mammography after age 50 or so.

After sharing all the above information, I feel that my patients are reasonably well informed and can make their own decisions, with my support.

Final Comments

Some readers might conclude that they won't recommend screening mammography at all or may instead choose to recommend breast thermography. Before going the route of thermography, I recommend the excellent article by Walker and Kaczor: Breast Thermography: History, Theory, and Use.[xii] The recent research pointing to more serious questions about the benefits vs. harm of screening mammography in low risk women has not caused me to stop recommending screening mammography or to

suggest thermography. Instead it has caused me to have an increased awareness that the mortality benefit is possibly modest and that my recommendations and my patients' decisions may in fact be a close call with trade-offs of modest benefit and modest harm. This highlights the need for us to make individual recommendations based on known risk factors including obesity, more than 7 alcohol drinks per week, a first-degree relative with breast cancer history, BRCA mutations, and the slight increased risk incurred after estrogen with progestin (and not necessarily progesterone and not estrogen only) use for 3–4 years in postmenopausal women. As a point of clarification though, I would typically recommend annual screening for these higher-risk women 40 and older.

I always try to present information and recommendations in a manner that provides my patients with quality and up to date information and encouragement to decide what they are comfortable with and what choice they want to make for themselves.

Note: A large part of this blog was originally written by Dr. Tori Hudson for the Natural Medicine Journal, an electronic publication for the natural medicine practitioner community.

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