Less screening, more prevention

Authors: Daphne Lo, MD, PGY-3

**Story from the Front Lines**

In 1996, a 40 year old Chinese female of lifelong body mass index less than 25 who was a non-smoker, multiparous, had never used exogenous hormonal therapy and had no family history of uterine, ovarian, or breast cancer began receiving annual mammograms. At the age of 48, routine screening mammogram found a less than one centimeter lesion. A biopsy two weeks later found normal breast tissue. At the age of 53, a screening mammogram detected a new several millimeter lesion. The lesion could not be found during her biopsy and it was recommended she return in six months for a follow up mammogram. After six months of waiting, she was relieved when her follow up mammogram was normal. She continues to receive annual mammograms.

**Teachable Moment**

It is imperative to understand the potential risks and benefits of annual screening mammography and the factors responsible for decreasing mortality trends from breast cancer. The leading cause of death for women ages 40-65 is cancer, with breast cancer as the most prevalent cancer in females in the United States.\(^1,2\) However, the overall risk of dying from breast cancer during this time is less than 1%.\(^1,2,3\) Within the low risk of dying from breast cancer, annual screening mammograms at best minimally lower mortality and at worst make no difference.\(^3,4\) According to Surveillance and Epidemiology and End Results (SEER) data, approximately 10.25-13.52 out of 1000 60 year old females will die from breast cancer in the next 15 years without annual mammography.\(^3\) With annual mammograms, the number of deaths drops to 8.66-9.74 out of 1000, translating to a number needed to screen of 204-2,000.\(^3\) The
absolute risk reduction in women ages 40-50 is lower, with numbers needed to screen of 312-10,000.³

Though the benefits of annual mammography are relatively low, the risk of adverse effects are higher. The risk of a false positive over 10 years of annual screening mammogram in 1000 60 year old women is 39-54%.³ Of those women, approximately half will be recommended to undergo biopsy.³ The remaining women will likely be asked to wait for a follow up screening mammogram. Summarizing the numbers, of 1000 60 year old women who undergo annual screening mammography for 10 years, approximately three deaths may be prevented, nine deaths from breast cancer will occur despite screening, and about half the screened women will have a false positive result.³ In younger women, the mortality benefits are even less.³

Updated USPSTF guidelines give a grade B recommendation for biennial screening mammograms starting at age 50. Studies of biennial screening mammogram have demonstrated considerably less risk of false positives without sacrificing sensitivity.³ Additionally, overall mortality from breast cancer continues to decrease regardless of screening, likely due to mitigation of risk factors such as less menopausal hormonal use and improved treatment.¹

Though the risks of false positives and the downstream effects are often overlooked, the psychological and heightened uncertainty experienced by the patient in the vignette illustrates the potential for unintended consequences as a result of good intentions. In the context of the patient in the vignette, she is likely at lower than average risk of developing breast cancer, making the benefits of mammography questionable. However, moving to biennial screening mammograms may decrease the risk of further false positives while providing her the comfort of potential mortality benefit. Ultimately, the decision to undergo screening mammography should be well
informed and guided by clinicians who take into account a patient’s overall risk of developing breast cancer and her values around the tradeoff between benefit and harm.

References


4. Gotzsche PC, Jorgensen KJ. Screening for Breast Cancer with Mammography. *Cochrane Database of Systematic Reviews.* 2013,6