Breast cancer screening

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ABSTRACT

- Achieving and maintaining a high rate of attendance for screening and two-yearly re-screening is essential for the success of the BreastScreen Australia program. A low participation rate will result in fewer breast cancer-related deaths being prevented.
- Results of two recent large randomised trials do not show that a systematic approach to breast self examination finds breast cancers early or impacts on survival.
- "Breast awareness" and the prompt reporting of breast symptoms are important early detection messages for women of all ages.
- General practitioners have a key role in the promotion and provision of information about effective public-health initiatives for the early detection of breast cancer.

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BREAST CANCER is the most common cancer in women and the most common cause of cancer death in Australian women. Factors affecting mortality from breast cancer are earlier detection through screening, earlier presentation with symptoms, and improved treatments. For many years, public-health messages have promoted the importance of both mammographic screening and systematic, regular breast self examination for the early detection of breast cancer. More recently, both of these screening tests have been strongly challenged, necessitating a review of their role by primary care providers.

Mammographic screening

Mammographic screening for breast cancer offers the opportunity to change the prognosis through detection of the disease at a preclinical and localised phase.

In the 1960s and 1970s, international randomised trials showed a 30% reduction in mortality from breast cancer by early detection through screening mammography.[1-3] On this basis, many countries have introduced population-based breast cancer screening. A national mammographic screening program was introduced in Australia in 1991 and was fully implemented by the end of 1995. Evidence of a benefit from mammographic screening, in terms of mortality reduction, is strongest for women aged 50–69 years. The BreastScreen Australia program targets asymptomatic women aged 50–69 years, who are screened at two-yearly intervals; women aged 40–49 and 70 years or older may also attend. For women aged 40–49 years, the magnitude of the benefit in terms of deaths prevented is less clear,[4,5] although recent evidence from the Swedish program shows far greater benefits than reported in previous trials.[6]

In 2001, a systematic review questioned the effectiveness of mammographic screening and the validity of the randomised trials, and concluded: "the reliable evidence does not indicate any survival benefit of mass screening for breast cancer".[7]

This review was the subject of widespread attention and debate; its quality was criticised, and the analysis was described as fundamentally flawed.[8] Screening programs and cancer societies internationally have remained strongly supportive of screening mammography as the most effective tool available for early detection of breast cancer and reduction in mortality.[9]

Although the evidence of benefit for population-based mammographic screening has emerged strongly in the wake of this challenge,[5,6,10] there remain other challenges to its continued and successful implementation nationally.

Performance measures, rated against standards derived from randomised trials and adjusted for local conditions, provide an indication of the mortality reductions likely to be achieved by the BreastScreen program. The mortality reductions of up to 30% were achieved in trials with high participation rates. More recent results have shown a mortality reduction of around 40% in established population-based programs with participation rates of 85% or higher.[6] Participation in screening is a key performance indicator, and current Australian participation rates for women aged 50–69 years are around 55%.[11] Achieving and maintaining a high rate of attendance for screening and two-yearly re-screening is essential for the success of the program. BreastScreen aims for 70% participation for women aged 50–69 years. Australian women can also attend private clinics for breast screening, and the impact of their numbers on screening participation is not clear.

General practitioners, through opportunistic discussion and providing referrals, can be extremely effective in encouraging women to participate in mammographic screening. Australian studies have shown that, after a recommendation from their general practitioner, between 68% and 91% of women will attend for screening.[12,13] The provision of accurate information to women about the benefits, as well as the limitations, of mammographic screening, and about the tests used to investigate an abnormality, are vital to enable women to make informed decisions.

Inherent in a high-quality mammographic screening service is ensuring that it can achieve a high cancer-detection

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rate for women attending for screening, while minimising the number of unnecessary investigations. BreastScreen seeks to achieve and maintain high standards for all aspects of screening and assessment, by implementing the National Accreditation Standards[14] within a quality improvement framework.

Even with a good quality mammographic screening program, about 25% of women aged 40–49 years who have invasive cancer will be incorrectly advised that their mammograms are clear.[15] This compares with a false-negative rate of around 10% for women aged 50–69 years. Consequently, it is particularly important that the potential role of newer technologies that may assist the early detection of breast cancer in younger women at increased risk are investigated and evaluated. Several technologies exist or are being developed for use in breast cancer detection and diagnosis, such as magnetic resonance imaging and ductal lavage; however, their limitations and indications should be understood before they are used in practice.

Breast self examination

The challenges for public health and breast cancer organisations in providing evidence-based information to women and clinicians about breast self examination have been of a different kind.

We know that, even with a fully implemented mammographic screening program, more than half of all breast cancers in Australia are found by women themselves, or their doctors, as a change in the breast.[16] Additionally, over the years, public-health programs about the benefits of breast self examination have been supported and implemented by key cancer organisations in Australia. The benefits of breast self examination, based on the results of early research, had become a fondly held belief for many allied health professionals, doctors and their patients. However, the results of recent large randomised trials do not show that a systematic approach to breast self examination finds breast cancers early or impacts on survival.[17,18]

This evidence, which represents the best data currently available on breast self examination, does not support its role as a screening test. This has been interpreted by some as being a negative message. On the contrary, the data show that women who were never taught to perform breast self examination can and do find breast cancers early through the normal course of daily life.[17,18] This very important early detection message of "breast awareness" is for women of all ages and requires reinforcement at many levels. Women should be encouraged to present to their doctor early with any breast changes that they notice, irrespective of whether they have had recent screening mammography with normal results.

Conclusion

Public-health initiatives are only introduced after rigorous examination of the potential benefits, harms and costs for the community. While it is important, based on emerging evidence, to question and re-evaluate the usefulness of such initiatives, it is also important to ensure that clear, evidence-based messages are propagated and that women are not given confusing health advice.

Competing interests

None identified.

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