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Cover Picture:
Sun Si Miao (581-682 A.D.):
China's Pre-eminent Physician
(Refer to page 224-225)

The Case for Breast Cancer Screening in Singapore

S B Wee

Results obtained from numerous trials addressing breast cancer screening support the role of population-based screening in the reduction of mortality from breast cancer. Although recent controversy was raised about the actual impact⁽¹⁾, meta-analysis of eight widely-accepted randomised trials comprising about 430,000 screened women aged 50 years or older showed an overall mortality reduction of 25% from breast cancer when compared with the non-screened population⁽²⁾. Can we make a case for breast cancer screening in Singapore?

There are certainly sufficient aspects of this disease that would support such an effort here.

Firstly, it is the most common female cancer here, with overall cancer deaths being second only to that related to diseases of the circulatory system. Breast cancer accounts for one out of every four or five female cancers (22.8%)⁽³⁾, and this incidence has more than doubled over the last twenty-five years. This incidence is still increasing, and is expected to slowly approach the lifetime breast cancer risk that women in Western countries currently face.

Secondly, treatment at an early stage is effective, and does lead to a better survival outcome from the disease. Survival from breast cancer is related to cancer size at diagnosis. As an illustration, if cancer size alone is compared, survival at five years following treatment declines progressively from 98% for a node-negative cancer under 1 cm in size to 82% for a similar one above 5 cm, with a greater difference in magnitude when other prognostic factors are incorporated⁽⁴⁾. Smaller cancers are detected in a screened population. For instance, 70% of the cancers detected in Breast Screen NSW were under 15 mm in size, with 37% being 10 mm or less in dimension⁽⁵⁾. This is in stark contrast to that encountered locally, where the average cancer size at diagnosis is 2.5 cm⁽⁶⁾. Also, early detection tends to increase the proportion of node-negative cancers detected, resulting in more cancers detected and treated at an earlier stage.

Thirdly, the disease has a pre-invasive phase in its natural history during which timely intervention can alter its course. This phase is represented by ductal carcinoma-in-situ (DCIS), which may be commonly seen as mammary micro-calcifications on mammography, with or without an associated mass. In the Singapore Breast Screening Project, DCIS formed 26% of the diagnosed cancers in screened women⁽⁷⁾, compared to the non-screened proportion of between 10-15%. Treatment of cancer at this stage offers the only chance of complete cure for the patient, as intervention is carried out at a stage before the cancer acquires the ability for potential metastatic spread.

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Finally, there is a reasonably effective means of detection of early disease by mammography, which is a test that can be easily and reliably performed, and is non-invasive in nature. Mammography of good quality is widely available in Singapore. The issue of lowered sensitivity of mammography in Asian women, whose breasts are more dense, did not seem to be a problem noted in the Singapore Breast Screening Project, where the cancer detection rate using mammography was comparable to that seen in screened Western populations.

It should be pointed out that the weight of evidence supports screening women between the ages of 50 to 69 years. The value of such a population-based programme among younger women is still hotly debated. Available data on this subset of women is less convincing on the magnitude of any benefit, with the mortality reduction of 18% seen after a follow-up period of 12 years⁽²⁾. Possible reasons that can account for the difficulty in proving a benefit include the lower cancer incidence among younger women, a greater awareness of cancer among the "control" population (which would hamper the demonstration of a clear benefit when compared with screened individuals), and lower sensitivity of mammography in young breasts⁽⁸⁾. On balance, it is likely that there is a benefit, but it may be difficult to prove, especially when the cost-benefit considerations are factored in. Data on the value of large-scale screening for women beyond 70 years of age is even more lacking, although it is likely that most women who had been screened earlier in their lives will continue to be recalled in most programmes, unless they opt out.

The optimal screening interval is another unsettled issue. Most population-based programmes adopt a two- to three-yearly screening interval. This is set to allow the programme to remain cost-effective with an acceptably low rate of interval cancers.

In Singapore, a nation-wide government-subsidised mammography-based breast screening programme was initiated in January 2002. Called BreastScreen Singapore, it is targeted at women aged 50 to 69 years of age, with the objective of screening up to 70% of this subset of women by 2008. Women who are eligible are invited by letter to present for the first screen, and recalled at two-yearly intervals for mammography. All women with abnormal mammograms, and women who report breast symptoms regardless of mammogram outcome will be recalled for assessment. This programme is centrally administered by the Health Promotion Board, which will maintain the Central Registry responsible for tracking and recall. The long-term objective is to reduce breast cancer mortality by 10% by 2010.

In the context of screening, we must remember that mammographic screening is merely one pillar supporting a structured effort for the early detection of breast cancer, the other pillars being breast self-examination (BSE) and clinical breast examination (CBE). It is worth emphasizing that in the control of a disease where no effective preventive measures are available, early detection and treatment remain our only viable strategy. This cancer remains a clinical entity in our setting, as the average size of cancer at diagnosis is 2.5 cm in diameter. Although there are no convincing trials demonstrating conclusively the effectiveness of BSE, encouraging regular self-examination for breast lumps among our womenfolk, with early medical consultation when changes occur, is a simple enough strategy to get cancers to be present early for treatment. Such a simple practice is easy to teach, and not equipment- or technology-

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dependent. The same can be said for CBE, where the opportunity of early detection of breast lesions exists if primary health care physicians incorporate CBE into their routine check-up for patients under their care. With such relatively simple measures, it is conceivable that the size of breast cancers will decrease with time. Such measures have already been put in place in recent efforts targeted at enhancing breast cancer awareness.

It will take some time for our population to move towards a higher level of cancer awareness. With time, breast cancers will be detected at smaller dimensions, and eventually become impalpable or non-clinical entities. Only then will we see screening by mammography become the dominant pillar in the early detection of breast cancer. Until such a time, any reduction in breast cancer mortality in our local population will depend on both a heightened awareness of breast cancer with adoption of practices like regular breast examinations, as well as a well-structured population-wide mammography-based breast cancer screening programme. **SMJ**

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