SCREENING FOR BREAST CANCER IN INDIAN WOMEN: A PERSONAL PERSPECTIVE

TO:

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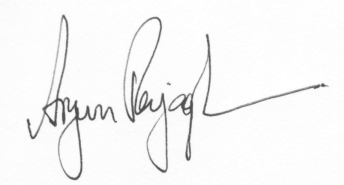
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Dear Editor,

This is to confirm that the article entitled “SCREENING FOR BREAST CANCER IN INDIAN WOMEN: A PERSONAL PERSPECTIVE” submitted to the Indian Journal of Medical Ethics is original and has been authored by the undersigned.

The submission is not under consideration for publication in any other journal. I have no published articles of a similar nature.

I have no sponsorship or relevant competing interests, financial or otherwise. I have read the terms and conditions of authorship of IJME and accept them.



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SCREENING FOR BREAST CANCER IN INDIAN WOMEN: A PERSONAL PERSPECTIVE

All knowledge is imperfect: an amalgam of facts, heuristics (rules of thumb) and beliefs. Screening for breast cancer is no exception, with the caveat that there is far more of the latter. Let’s begin with some facts about breast cancer in India.

Breast cancer is now the commonest cancer of women in India, with an age-adjusted rate as high as 25.8 per 100,000 women and mortality of 12.7 per 100,000 women (1). The age-standardised incidence rate of breast cancer increased by 40·7% from 1990 to 2016 (2). There is a 26% increase in incidence between 2005-15 in low socioeconomic status countries as a whole(3).

79,000 new cases were diagnosed in India, in the year 2000 alone (4). Even today, the majority of breast cancers are first diagnosed at locally advanced stages, ranging from 35 to 76% of all women, even in urban locations (5).

In the light of this immense problem and the burden on resources that it imposes, it seems reasonable to recommend, as in all instances of high-impact disorders, screening processes. Two premises, both contestable, drive reasoning in this effort. First, that currently available screening techniques are cost-effective and, second, early diagnosis will translate into better cure and control rates.

There is a near total absence of good quality data from India on the topic of screening for breast cancer. Necessarily, and dangerously, one has to extrapolate from what is available in the “Western” literature in the hope that the disease is biologically similar. Enter, the heuristics and beliefs.

There are, currently, 3 strategies for screening women for breast cancer: breast self examination (BSE), clinical breast examination (CBE), and mammography. None of these are “one off” tests. They need to be carried out at varying intervals for the entire decades during which the woman is at risk.

A systematic review of BSE and CBE (6) showed no support for the efficacy of either method. Two large population‐based studies (388,535 women) from Russia and Shanghai, compared breast self‐examination with no intervention. There was no statistically significant difference in breast cancer mortality between the groups. One large population‐based trial of clinical breast examination combined with breast self‐examination, was discontinued because of poor compliance with follow up, No conclusions could be drawn.

Mammography comes in many variants. All of them require mechanical breast compression for obtaining images that present a maximum breast area and minimises overlap artifacts.. Breast compression is quite painful. Many women are reluctant to submit themselves to repeat examinations after their first experience with mammography.

The oldest mammographic technology is film mammography which uses special x-ray films and requires interpretation by a skilled radiologist. This technology, like much else in radiology, has been digitised. Algorithms were then developed that allowed machine reading of images with reported comparable accuracy to human-read mammograms. Breast tomosynthesis, the most recent technology, uses multiple low dose x-rays of the breast from different angles and reconstructs these images into thin slices that can be viewed sequentially. A “3-D mammogram” is synthesised (7). Digital breast tomosynthesis has been reported to significantly increase detection rates and lower false positive studies (8). Needless to say, as one moves up the technology grade, costs become larger.

Amongst the many unresolved issues in mammography, the age range and frequency of testing are still hotly debated. Strategies for screening mammography can be based on starting age (40 or 50), stopping age (69 - 74) and interval (1,2,3 years) (9). There is no strong evidence for using the test in women older than 70 (10).

Large scale implementation of mammographic screening programmes carries a risk of increasing false positives. A large study (11) suggested 31% of breast cancers diagnosed in 1996 - 2009 were overdiagnosed. Screening rates correlate with increased incidence. Studies have shown a 20% cumulative risk of a false-positive result for women who start screening at age 50 and undergo 10 biennial screens (12). This is a big number. The costs of pursuing false positives, financial and emotional, are large.

Detached from all other issues that hound the use of mammography as a screening tool , there is good evidence in support of the efficacy of mammography in picking up pre-clinical breast cancer in a single study.

We now come to the all-important question of whether mammography improves breast cancer mortality.

The Cochrane Database has a review which includes seven trials involving 600,000 women (13). The studies which provided the most reliable information showed that screening did not reduce breast cancer mortality. In view of the critical nature of this subject, I quote verbatim from the review.

”*We believe that the time has come to re‐assess whether universal mammography screening should be recommended for any age group. Declining rates of breast cancer mortality are mainly due to improved treatments and breast cancer awareness, and therefore we are uncertain as to the benefits of screening today. Overdiagnosis has human costs and increases mastectomies and deaths. The chance that a woman will benefit from attending screening is small at best, and ‐ if based on the randomised trials ‐ ten times smaller than the risk that she may experience serious harm in terms of overdiagnosis. Women, clinicians and policy makers should consider the trade‐offs carefully when they decide whether or not to attend or support screening programmes.*” Strong words, indeed.

A more recent. population-based study (14) from Norway also confirmed no effect on breast cancer mortality from an organised mammography screening programme.

When it comes to the consideration of screening methods for breast cancer for Indian women, we find ourselves in turbulent waters. Implementing breast cancer screening programmes is not easy in India, a country of vast social, cultural and economic diversity. A study (15) of 18 community based programmes that were carried out between 2006 and 2009 demonstrated a wide range of problems including limited knowledge, limited funds, difficulty in accessing facilities, family priorities and unhelpful attitudes of health workers. The study showed a 50% rate of attendance, on the average, at these programmes: a figure that is far short of the numbers needed for success of any population-wide, screening scheme.

Nevertheless, if we were to examine the issue of the most effective screening strategy for Indian women, a study (16) used a “micro simulation model”. Biennial clinical breast examination (CBE) for the 40-60 age group might be as cost-effective as screening mammography. They point out that a high level of compliance is necessary (vide the 50% rate quoted earlier). In addition, a strong referral system has to be in place for further workup and treatment of screen positive women. A nation-wide network of cancer treatment centres has to be at hand for the screening programme to be successful. Considering the paucity of these facilities in the public sector, the challenges can be daunting.

A simple reminder call can increase screening adherence even when baseline adherence is high (17). In the era of near-universal mobile phone access enhanced by technologies like WhatsApp, simple messages can be widely disseminated in minutes to hours

News media have a significant role to play in the adoption of health programmes (18). They can affect policy processes by influencing policy makers in many ways: information overload, perceived complexity, degree of ambiguity — all of which have an impact on “the likelihood of persuasion, diffusion, and/ or bargaining among policy actors.” The impact of media on the public mind cannot be overstated or discounted when implementing health care policies.

I began this piece with the need to validate two premises. The first, cost-effectiveness, is clearly loaded against India. Mammography remains the only possibly effective test but its costs are prohibitively expensive for a poor country. The mean cost per cancer detected, in the USA has been reported as USD 35,480 (roughly 25 lakh INR)(19).

There are no reliable data for cost of detection in India for any of the three methods. Regarding mammography, if we use a commonly quoted heuristic, with assumptions about the biological similarity of the disease in all populations, we can carry out a back-of-the-envelope calculation for India. About 10% of all screening mammograms will need further evaluation for concluding a diagnosis. Of these, only another 10% — 1 in 100 of all mammograms — will yield confirmation of breast cancer. If we assume a cost of around 1000 INR (a low figure)for the cheapest technology — film mammography— and the need for a programme of 12 studies in the lifetime of a woman, the cost per cancer detected comes to about 12 lakh INR. I don’t know the figure for the population of Indian women at risk but I assume it’s about 300 million or so. India can’t afford this. There are many more pressing problems that need to be solved. Implementation of population-based mammographic screening requires heavy investment in infrastructure, human resources and quality assurance that is beyond the capacity of LMICs (3).

There is a suggestion (not proof) that CBE may be a cost-effective option for India. BSE is a “good thing” to recommend, once again, with no supporting evidence.

Regarding the value of any of these three methods in improving mortality from breast cancer, the evidence shows no benefit.

A nation, in its 8th decade of democracy, has only now begun to address the problem of health equity for its poor and underprivileged. India has one of the lowest, per capita, governmental spending on health. The much-publicised Ayushman Bharath scheme has allocated a mere 5800 crores for this year: a figure that comes to around 100 rupees for each individual covered. It is futile to imagine any population-based screening programme, leave alone mammography, being covered with this tiny figure.

More specifically, as practising doctors, we owe an ethical, fiduciary responsibility to all of our patients in recommending what the evidence base (an imperfect and shape-shifting entity) supports as the best choice of intervention.

In my practice (private, middle class), I have been able to justify screening mammography, without reservation, for only two subsets of women. The first is those women who have already been diagnosed and treated for early-stage breast cancer. There is a much higher risk of them developing a recurrence in the remaining breast if they have undergone a mastectomy or, in the era of breast-conserving surgery for breast cancer, both breasts. The second, very small group, is women who have two or more first-generation relatives (mother/ sister) with a proven diagnosis of invasive breast cancer. The recommendation to women who have had previous biopsies reported as “severe atypia”has no solid evidence in support. Similarly, recommendations for BRCA-positive women are not clear enough with regards to mammography. These latter two situations are very much up to the doctor treating the patient and are a matter of “opinion”. In the era of “evidence-informed Medicine”, wherein the inputs of the patient are held to be as important as the facts, women will ask for mammographic screening. Inevitably, these are well educated, relatively affluent Indians who can fund the costs of testing personally. I consider it my duty to explain the concerns lurking in the background and reinforce that they must be committed to a dozen or so examinations in the coming decades. Anything less would be untenable and a wasteful expense. Such a thrifty strategy will prove to be extremely unpopular with the poorly regulated, grossly maldistributed, highly privatised, laissez faire health care economy of India.

George Santayana is credited with saying, “Those who cannot remember the past are condemned to repeat it.” And also, “Skepticism is the chastity of the intellect.” We have options. It’s up to us to choose.

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