GLOBAL DISPARITY IN BREAST CANCER SCREENING GUIDELINES- IS THERE A NEED FOR AN INDIVIDUALIZED APPROACH?

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ABSTRACT
Breast cancer screening is the key to better clinical outcomes. Cancer diagnosed at the stage where it is still within the ducts has the highest potential for best survival. A screening mammogram is a gold standard for early detection. However, there is variation in the age related guidelines for starting the screening and cessation. Given the rate of breast cancer in the region, the government's economic resources and the priority of the screening service all play a role. Developed countries have benefited from screening mammogram facilities and improved disease outcomes, but underdeveloped countries have not yet introduced national screening programs. Thus nations must take the regional incidence and the biology of breast cancer into account and make evidence-based guidelines.

Key Words: Breast cancer, Mammogram, Screening

INTRODUCTION

Breast cancer is the most common cancer worldwide and the leading cause of death(1). Past few decades, breast cancer mortality has declined to owe to the facility of screening and early detection. To some extent, national breast cancer awareness programs have also played a role. Screening mammogram is the gold standard technique used globally. The mammogram was initially thought to be useful in 1913 but without any promising results; later, much research was conducted between the 1940s and 1970s. Finally, in the 1970s, breast cancer screening using mammograms was introduced(2). Breast cancer screening mammogram is now being used in many countries to detect breast cancer much earlier than it becomes symptomatic. Recently presented data suggested a 40% reduction in mortality in women between 40-74 years of age by taking the benefit of screening mammograms (3). The time elapsed between the development of cancer and its stage is directly proportional; if left untreated for long, the stage of the disease will be advanced. If it is diagnosed at an advanced stage, the survival is poor.

This has been observed that the incidence of breast cancer has racial and regional disparity. Breast cancer has the highest incidence in American women, followed by Europeans(4). Though African women are at relatively lower risk of breast cancer, their tumors are highly aggressive, showing a poor prognosis(5,6). Screening has multifactorial influences, mainly economic, the national incidence, and thus the screening mammogram has different guidelines in different regions. The critical factors that influence breast cancer screening include age at the start of the mammogram, frequency of the screening mammograms, and the X-ray mammograms' views. Each aspect will be compared here, which is considered by international guidelines.

Starting age of screening mammogram

The breast tissue is dense in young patients; thus, the sensitivity of the mammogram to detect tumors is less(7). In addition, the rate of breast cancer is also relatively lower in younger patients; thus, the screening mammograms start at the age of 40 years in most countries. In the United States of America (USA), women between 50 and 74 years are invited for screening, and between 40 to 50 years should be on an individual basis according to their risk assessment(8). However, National Health Service (NHS) covers mammograms at 47 years by invitation to all average-risk women. The NICE guidelines suggest starting screening at the age of 20 years if there are p53 mutations, at 30 years if there is evidence of BRCA mutations. It is also interesting that the analysis of these mutations is not generally available. The upper age to cease screening mammograms varies from region to region, whereas in the USA, they have a consensus to stop screening at the age of 74 years. The woman will continue to have a screening mammogram if she has a 5-10 years life expectancy. At the same time, women with multiple diseases and a life expectancy of fewer than five years will not get a screening mammogram. The scientific logic to stop screening with less than five years of life expectancy concerns breast cancer biology, which becomes less aggressive with the advancing age. Thus it is less likely that breast cancer becomes lethal in the elderly age group within that short span of time. The mammogram is less sensitive in women <40 years; therefore, alternatives like MRI are advised annually.

Frequency of screening mammogram

There is a consensus to have an annual mammogram in American Societies for screening. While in countries with lower incidence and state-sponsored regions, it is advised to have a mammogram every two years or every three years. It is also recommended that if three consecutive annual mammograms are negative in an average-risk woman, she can have it every two or three years. Countries with poor prognoses and a lower incidence with limited resources always find it challenging to decide about the frequency. It is not yet answered what the frequency of mammograms should be in average-risk women, living in a country with lower incidence of breast cancer.

Screening mammogram views

There are three views of mammograms, including mediolateral (ML), cranio-caudal (CC), and oblique view. Generally, for screening, two views are taken ML and CC. There is an overall consensus on two views.

CONCLUSION

Breast cancer shows regional variation in the incidence and prognosis, and thus screening guidelines should be made accordingly. The countries with high incidence would be safe to continue with more frequent screening tests, but those with lower incidence have not yet decided when to start and how frequently they should be getting their nation screened. The evidence-based approach is the best policy, with regular audits of the service to explore the age for cancer development. In addition, the aggressiveness of cancer will help in deciding the frequency. For the more aggressive cancer, the mammogram should be more frequent (i.e., Annual); however, the risk of over-diagnosis should be considered.

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