EDITORIAL

Options for Addressing the Dilemma of Managing Dense Breasts

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Breast density on mammography is a well-documented risk factor for a future breast cancer diagnosis.[1] This association, and the desire to empower women regarding knowledge of their individualized breast cancer risk, has motivated several dozen states to enact legislation mandating patient notification of mammographic density, and in February 2019, federal law directed the US Food and Drug Administration to oversee a mammographic density–reporting process for the entire country.[2] Approximately 40% to 50% of women in the United States will be found to have heterogeneously or extremely dense breasts, and this frequency has remained stable despite incorporation of advances in screening mammography, such as digital breast tomosynthesis.[3] A formidable outstanding challenge, therefore, is for clinicians and patients to interpret this information and incorporate it into follow-up health care.

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Appropriate management of the several million US women found to have increased breast cancer risk associated with increased mammographic density is uncertain. Just a few of the unanswered questions include whether these women should consider chemoprevention and if weight reduction or some other lifestyle change can reliably alter mammographic density and more importantly, reduce breast cancer risk. Additionally, as per the focus of the Comstock et al[4] prospective trial reported in the current issue of *JAMA*: given that mammographic density is not only an inherent breast cancer risk factor but can obscure cancer-associated findings on a mammogram, what is the optimal strategy for enhanced screening after significantly increased mammographic density has been documented to increase likelihood of early detection of breast cancer? Options that have been proposed include whole-breast ultrasonography, digital breast tomosynthesis (DBT), breast magnetic resonance imaging (MRI), and other so-called versions of mammography, such as molecular breast imaging.[5,6]

Comstock et al[4] are to be heartily congratulated for their successful effort in generating high-level evidence regarding improved breast cancer screening and early detection in women with increased risk associated with mammographic density through the conduct of a large prospective clinical trial. This cross-sectional study involved more than 1400 women with dense breasts from 48 diverse practice sites in the United States and Germany, and it assigned participants to undergo both DBT and abbreviated breast (AB)–MRI. The investigators found that AB-MRI detected more invasive cancers (11.8 per 1000 women) compared with DBT (4.8 per 1000 women).

As with any discussion of a novel approach to screening and/or cancer treatment, we are obligated to assess the feasibility and practicality of applying the new strategy to large patient populations. The population-based lens must include scrutiny of cost as well as implications regarding access to care and disparities. These issues are particularly relevant to discussions of innovations in breast cancer screening, where different professional and academic organizations already disagree with regard to age-based mammography screening guidelines, and the inconsistent recommendations are at least partly explained by conflicting evaluations of screening efficiency. Although all guidelines advocate in favor of access to screening mammography in women at mean levels of risk beginning at age 40 years, the US Preventive Services Task Force recommends routine initiation of screening mammography at age 50 years, whereas the American Cancer Society uses age 45 years as the starting benchmark for screening, and the National Comprehensive Cancer Network uses age 40 years. Also, breast cancer disparities associated with racial/ethnic identity are well documented. Population-based breast cancer mortality rates are 40% higher in African American women compared with white American women. This outcome disadvantage is multifactorial in causative mechanism, but the disproportionate prevalence of poverty and health care access barriers among African American individuals clearly plays a role.[7] Appraisal of breast screening MRIs in the context of population demographics and cost is therefore warranted.

The Comstock et al trial[4] randomized women age 40 to 75 years (mean age, 54.9 years), with 4% of participants categorized as African American and 91% as white. This study is therefore relevant to the screening practices of white women in the age demographic of 40 to 49 years but is less informative regarding screening of African American women. While accrual of diverse populations to breast cancer screening and treatment studies is always an important goal, it is unclear whether the results of this particular study would have been influenced by a different study population profile. The extent to which breast density patterns may vary between different population subsets defined by race/ethnicity (especially after accounting for body mass index) has not been robustly researched, but the correlation between mammographic density and breast cancer risk has been seen across diverse races/ethnicities.[8-13]

Comstock et al[4] commented on the issue of cost and MRI, but as delineated by Kuhl,[14] important distinctions between AB-MRI and standard MRI include the substantially shorter amount of magnet time per patient (less than 5 minutes) and reduced radiologist reading time, thereby improving efficiency and potentially lowering costs. A detailed cost analysis for the current trial was not provided, but despite the advantages of the abbreviated imaging, the study did demonstrate

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that for AB-MRI compared with DBT, specificity was lower, detection of lesions at Breast Imaging Reporting and Data System levels 3 to 5 was higher, and more benign breast biopsies were performed. All of these findings would be expected to have cost implications.

On an international basis, the rising burden of breast cancer in low- and middle-income countries also deserves attention. In these countries, most breast cancers present as locally advanced and metastatic disease. Public health efforts to improve breast cancer outcomes must therefore focus on the downstaging of clinically evident disease rather than screening modalities.[15] Survival disadvantages associated with health care access barriers are magnified in these communities, and diminished availability of any advanced medical technology such as MRI compared with more affluent countries is an unfortunate reality.

Discussion of the challenges associated with broadened applications of breast MRI technology does not represent a reason to abandon exciting advances in breast imaging. However, it does underscore the obligation to strive for equitable access to such advances and the access imperative should include domestic as well as global neighbors.

ARTICLE INFORMATION

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