US Breast Cancer Screening Recommendations

Subjects: Oncology

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Rates of cancer screening, diagnosis, and treatment decreased significantly in the US and other developed nations during the height of the COVID-19 pandemic and lockdown (April 2020) and have since recovered, although not to baseline levels in many cases. For breast cancer, the USPSTF recommends biennial screening with mammography for women aged 50–74, while the ACS recommends annual screening for women aged 45–54, who may transition to biennial after 55. Breast cancer (BC) is the most common neoplasm (besides skin cancer) and the second leading cause of cancer death among women in the US.

COVID-19 cancer screening USPSTF pandemic breast cancer mammography

1. Introduction

Cancer screening in the US is an integral part of primary care and secondary prevention estimated to save hundreds of thousands of lives. Breast [1], cervical, colorectal [2], and lung cancer [3] each have evidence-based screening modalities that are recommended by the US Preventive Services Task Force (USPSTF) and American Cancer Society (ACS) for patients of certain ages and risks, while prostate cancer screening currently holds an equivocal recommendation [4]. The COVID-19 pandemic and ensuing lockdown, which reached its height in the US in April 2020, significantly decreased rates of screening, diagnosis, and treatment for these cancer types [5]. While screening and diagnosis rates are recovering, these missed opportunities for secondary prevention are projected to depress survival statistics for certain tumors for years to come [6], especially among vulnerable populations like Black, Hispanic, and rural Americans who have lower historic screening rates [7]. The purpose is to examine the latest recommendations and technologies for cancer screening, demographic disparities in screening rates, and the estimated impact of COVID-19 on screening, diagnosis, and mortality.

2. Current Breast Cancer Screening Recommendations

In 2016, the USPSTF issued a “B” grade recommendation that all women aged 50–74 years receive biennial screening mammography. Women aged 40–49 were issued a “C” grade recommendation, which advises them to come to an individualized decision with their provider on whether to pursue mammography. No grade “A” recommendations were issued [1]. In contrast, the ACS recommended in 2015 that women aged 45–54 receive screening mammography annually, while women 55 and older choose whether to receive annual or biennial mammography until life expectancy is below 10 years. Women aged 40–44 were advised to consider annual

mammography with their providers. Women at high risk (*BRCA1* or *2* gene mutations, personal history or strong family history of breast cancer or tumor syndromes like Li–Fraumeni and Cowden, or chest radiation therapy at 10–30 years of age) are recommended to receive breast MRI and mammogram screening every year starting at age 30 [8].

Digital breast tomosynthesis (DBT), also known as 3D mammography, is considered the preferred imaging modality due to improved sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) [9][10], and decreased compression of the breasts [11]. Breast MRI is utilized in adjunct in those with higher risk or denser breast tissue, which decreases the sensitivity of mammography [12]. Abbreviated breast MRI has been studied due to its reduced cost and comparable sensitivity, paving the way for broader utilization as a screening tool [13]. The Breast Imaging-Reporting and Data System (BI-RADS) developed by the American College of Radiology classifies findings on mammography, MRI, or ultrasound as BI-RADS 0: incomplete, 1: negative, 2: benign, 3: probably benign (<2% risk of malignancy), 4A: low suspicion of malignancy (2–9%), 4B: moderate suspicion for malignancy (10–49%), 4C: high suspicion for malignancy (50–94%), 5: highly suggestive of malignancy (>95%) and 6: biopsy-proven malignancy [10].

In the US, patients living in rural and low socioeconomic status zip-codes have lower rates of breast cancer screening [7]. African American and Hispanic women are significantly less likely to receive DBT, which is associated with superior breast cancer detection [14]. African American and non-English-speaking patients were also less likely to receive timely notification and follow-up of abnormal mammography results, which poses a higher risk for morbidity and mortality [15][16].

3. Impact of COVID-19 on Breast Cancer Screening

Lockdowns and public fear in the midst of the COVID-19 pandemic significantly decreased rates of breast cancer screening and diagnosis in the US. The rate of screening across 20 healthcare institutions dropped by 43.8% in March 2020 (as compared to March 2019) and by 89.2% in April 2020, constituting the largest decrease among cancer screening modalities, as published in JCO Clinical Cancer Informatics [5]. Several retrospective studies of US insurance databases and providers corroborated the decrease in screening and diagnosis. Data from the Clearinghouse database representing 5–7% of Medicare patients found that biopsy rates for breast cancer were reduced by 71% in April 2020 among US seniors (age > 65) [17]. Another retrospective study of 55 breast imaging centers across 27 US states found a 61.7% decline in breast imaging, a 20.5% decline in breast surgery, and a 39.9% decline in cancer genetics consultation from Feb 2020 to April 2020 [18].

Around the developed world, decreases in screening rates translated to decreased rates of diagnosis. A retrospective study based on the English national database found a 28% reduction in breast cancer diagnoses from January to July 2020 as compared to the same period in 2019 [19]. A retrospective study across 18 cancer centers in Austria found a 24% reduction in breast and gynecological cancer diagnoses in March 2020 and a 49% reduction in April 2020 [20]. Finally, a retrospective study of a hospital network in Macerata, Italy, found breast cancer diagnoses decreased by 26% in 2020 as compared to 2019 [21]. In the US, patients in the CCRN saw a

56.9% decrease in cancer-related appointments in April 2020, with a particular decline of 74% in new-incident cancers. Breast, melanoma, and prostate cancers were among the most affected, with 50.5% fewer new BC diagnoses [5].

Screening rates in the US have recovered since the initial days of the pandemic. Among select Medicare patients, while mammography rates were down 71% in April 2020, they were only down 31% in July [17]. Based on the Breast Cancer Surveillance Consortium data, screening and diagnostic mammography rates in April 2020 were 1.1% and 21.4% of their 2019 levels, respectively, but improved to 89.7 and 101.6% by July. Rates of screening in July of 2020 were 96.7% for Black women, 92.9% for White women, 72.7% for Hispanic women, and 51.3% for Asian women as compared to July 2019 [22]. While Asian and Hispanic women have historically reported lower rates of breast cancer screening, due to a multitude of structural and cultural factors, it seems the COVID-19 pandemic has presented new challenges to these populations that have prevented a return to baseline [23]. As the pandemic enters its second year, patients who remain hesitant to return for primary care will inevitably elapse the USPSTF's biennial screening recommendations. The continued decline in new-incident cancer diagnoses suggests thousands of cases that are going undetected, which is likely to depress breast cancer prognosis in the coming decade.

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