SF01-S2 Supplemental Breast Ultrasound Screening

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Supplemental Breast Ultrasound Screening in Women with Personal History of Breast Cancer

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Surveillance mammography for women with a personal history of breast cancer (PHBC) is known to improve survival outcomes by detecting second breast cancers at their early stages. Annual mammography is therefore consistently recommended across guidelines for women with a PHBC. Unfortunately, mammography alone has shown limited performance to detect second breast cancers. Mammography has shown lower sensitivity and higher interval cancer rates in women with a PHBC when compared to those without a PHBC [1]. Furthermore, despite the technological development and transitioning from screen-film to digital mammography and digital breast tomosynthesis, surveillance mammography has shown minimal improvement over time [2, 3]; digital mammography showed an overall similar performance to screen-film mammography [2]. Compared to digital mammography, digital breast tomosynthesis did not show an improved cancer detection rate, although specificity was improved by reducing the summation artifacts [3]. These results suggest the need for supplemental screening with ultrasound (US) or MRI to improve cancer detection in women with a PHBC. Data on the supplemental imaging strategies and outcomes for PHBC women is scarce. Overall, supplemental US has shown lower performance compared to supplemental MRI; for example, according to a Korean multicenter prospective study, the incremental cancer detection rate of MRI (3.8 per 1000 examinations) was higher than that of US (2.4 per 1000 examinations) [4]. In an age- and density-matched cohort study, supplemental US for women with a PHBC has shown lower sensitivity and higher interval cancer rates relative to women without a PHBC [5]. Moreover, 67.5% of the interval cancers were detected by other imaging modalities such as MRI, PET/CT, and Chest CT [5]. These results corroborate the imperfect performance of supplemental US for PHBC women. Additionally, limitations of US include high rates of BI-RADS category 3 (probably benign findings) requiring short-term follow-ups, false-positive biopsies, and inter-observer variability. Despite the modest performance and limitations, supplemental US has been widely used, especially in Korea, due to the following advantages being: no use of contrast agents, better accessibility and tolerability, as well as lower costs than MRI. To improve the sensitivity of US, we must concentrate during US examinations, and focus on the margin and shape of a new mass. To improve specificity of US, complicated cysts, oval or round masses, or masses with negative findings on both Doppler US and elastography can be downgraded to BI-RADS category 2 (benign findings) after careful evaluation. Currently, there are knowledge gaps on the optimal surveillance strategy for women with a PHBC, and due to this gap and absence of guidelines, many institutions currently are adopting the same (undifferentiated) strategy regardless of patients' and tumors' characteristics. In order to utilize the resources more wisely, further research will be needed on the optimal use of surveillance imaging according to each woman's individualized risk.

References

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