One view or two views for wide-angle tomosynthesis with synthetic mammography in the assessment setting?

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Objectives

To evaluate the diagnostic performance in the assessment setting of three protocols: one-view wide-angle digital breast tomosynthesis (WA-DBT) with synthetic mammography (SM), two-view WA-DBT/SM, and two-view digital mammography (DM).

Methods

Included in this retrospective study were patients who underwent bilateral two-view DM and WA-DBT. SM were reconstructed from the WA-DBT data. The standard of reference was histology and/or 2 years follow-up. Included were 205 women with 179 lesions (89 malignant, 90 benign). Four blinded readers randomly evaluated images to assess density, lesion type, and level of suspicion according to BI-RADS. Three protocols were evaluated: two-view DM, one-view (mediolateral oblique) WA-DBT/SM, and two-view WA-DBT/SM. Detection rate, sensitivity, specificity, and accuracy were calculated and compared using multivariate analysis. Reading time was assessed.

Results

The detection rate was higher with two-view WA-DBT/SM (p = 0.063). Sensitivity was higher for two-view WA-DBT/SM compared to two-view DM (p = 0.001) and one-view WA-DBT/SM (p = 0.058). No significant differences in specificity were found. Accuracy was higher with both one-view WA-DBT/SM and two-view WA-DBT/SM compared to DM (p = 0.003 and > 0.001, respectively). Accuracy did not differ between one- and two-view WA-DBT/SM. Two-view WA-DBT/SM performed better for masses and asymmetries. Reading times were significantly longer when WA-DBT was evaluated. could be up to 0.63% and 0.56%, if the interval cancers selected for consensus were detected at screening. In the former scenario, screen-reading volume would be reduced by 50%, while the latter would reduce the volume by 90%.

Conclusion

One-view and two-view WA-DBT/SM can achieve a higher diagnostic performance compared to two-view DM. The detection rate and sensitivity were highest with two-view WA-DBT/SM. Two-view WA-DBT/SM appears to be the most appropriate tool for the assessment of breast lesions.

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