

Diagnostic performance of digital breast tomosynthesis for predicting response to neoadjuvant systemic therapy in breast cancer patients: A comparison with magnetic resonance imaging, ultrasound, and full-field digital mammography



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Purpose

To evaluate the accuracy of DBT in assessing response to NST compared to FFDM, ultrasound (US), and magnetic resonance imaging (MRI) in breast cancer patients.

Materials and Methods

In this retrospective study, 95 stages II–III breast cancer patients undergoing NST and subsequent surgeries were enrolled. After NST, the longest diameter of residual tumor measured by DBT, FFDM, US, and MRI was compared with pathology. Agreements and correlations of tumor size were assessed, and the diagnostic performance for predicting pathologic complete response (pCR) was evaluated.

Results

Mean residual tumor size after NST was 19.9 mm for DBT, 18.7 mm for FFDM, 16.0 mm for US, and 18.4 mm for MRI, compared with 17.9 mm on pathology. DBT and MRI correlated better with pathology than that of FFDM and US. The ICC values were 0.85, 0.87, 0.74, and 0.77, respectively. Twenty-five patients (26.3%) achieved pCR after NST. For predicting pCR, area under the receiver operating characteristic (ROC) curve for DBT, FFDM, US, and MRI were 0.79, 0.66, 0.68, and 0.77, respectively.



Conclusion

DBT has good correlation with histopathology for measuring residual tumor size after NST. DBT was comparable to MRI in assessing tumor response after completion of NST.

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