

Are contrast enhanced mammography and digital breast tomosynthesis equally effective in diagnosing patients recalled from breast cancer screening?



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Purpose

Full-field digital mammography (FFDM) is widely used in breast cancer screening. However, to improve cancer detection rates, new diagnostic tools have been introduced. Contrast enhanced mammography (CEM) and digital breast tomosynthesis (DBT) are used in the diagnostic setting, however their accuracies need to be compared. The aim of the study was to evaluate the diagnostic performance of CEM and DBT in women recalled from breast cancer screening program.

Methods

The study included 402 consecutive patients recalled from breast cancer screening program, who were randomized into two groups, to undergo either CEM (202 patients) or DBT (200 patients). All visible lesions were evaluated and each suspicious lesion was histopathologically verified.

Results

CEM detected 230 lesions; 119 were classified as benign and 111 as suspicious or malignant, whereas DBT identified 209 lesions; 105 were classified as benign and 104 as suspicious or malignant. In comparison to histopathology, CEM correctly detected cancer in 43 out of 44 cases, and DBT in all 33 cases, while FFDM identified 15 and 18 neoplastic lesions in two groups, respectively. CEM presented with 97% sensitivity, 63% specificity, 70% accuracy, 38% PPV and 99% NPV, while DBT showed 100% sensitivity, 60% specificity, 32% PPV, 100% NPV and 66% accuracy. The CEM's AUC was 0.97 and DBT's 0.99. The ROC curve analysis proved a significant ($p < 0.000001$) advantage of both CEM and DBT over FFDM, however, there was no significant difference between CEM and DBT diagnostic accuracies ($p = 0.23$).



Conclusion

In this randomized, prospective study CEM and DBT show similar diagnostic accuracy.

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