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The accuracy of digital infrared imaging for breast cancer detection in women undergoing breast biopsy.

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Abstract

BACKGROUND:

Mammography has a lower sensitivity for breast cancer detection in younger women and those with dense breasts. Recent improvements in digital infrared breast imaging suggest there may be a role for this technology and we have studied its performance in 100 women prior to breast needle core biopsy (CB).

METHODS:

All patients were imaged using a digital infrared breast (DIB) scan (Sentinel BreastScan) prior to breast biopsy. Analysis of the infrared scans was performed, blinded to biopsy results, in four different ways: Sentinel screening report, Sentinel artificial intelligence (neural network), expert manual review and NoTouch BreastScan a novel artificial intelligence programme.

RESULTS:

Of 106 biopsies performed in 100 women, 65 were malignant and 41 were benign. Sensitivity of Sentinel screening (53%) and Sentinel neural network (48%) was low but analysis with NoTouch software (70%) was much closer to expert manual review (78%). Sensitivity (78%) and specificity (75%) using NoTouch BreastScan were higher in women under 50 and the combination of mammography and DIB, with NoTouch interpretation, in this age group resulted in a sensitivity of 89%.

CONCLUSION:

DIB using NoTouch is an effective adjunctive test for breast cancer detection in women under 70 and appears to be particularly effective in women under 50 where maximal sensitivity (78%) and specificity (75%) were observed. The combined sensitivity of NoTouch BreastScan and mammography in women under 50 was encouraging at 89%, suggesting a potential way forward for a dual imaging approach in this younger age group.

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