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The association of infrared imaging findings of the breast with hormone receptor and human epidermal growth factor receptor 2 status of breast cancer.

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Abstract

RATIONALE AND OBJECTIVES:

Evidence on breast infrared (IR) imaging and its association with estrogen receptor (ER), progesterone receptor (PR), human epidermal growth factor receptor 2 (HER2) statuses of breast cancers is limited. The aim of this study was to investigate the association of IR imaging findings and ER, PR, and HER2 status in breast cancers.

MATERIALS AND METHODS:

A total of 163 women with 171 pathologically proven breast cancers underwent IR imaging of the breast before surgery. Five IR signs were used to score the lesions: IR1, the temperature difference (ΔT) of the lesion site from that of the contralateral mirror image site; IR2, ΔT of the lesion site from that of the adjacent normal breast tissue in the same breast; IR3, abnormal vascular morphologic patterns; IR4, focal bulge or edge sign with back heat at the lesion site; and IR5, asymmetric thermographic pattern between the lesion site and the contralateral breast. The association of different IR signs with ER, PR, and HER2 status was evaluated using Fisher's exact test.

RESULTS:

IR1 was inversely associated with ER ($P = .010$) and PR status ($P = .039$). IR2 was inversely related to PR status ($P = .020$). IR5 was inversely associated with ER ($P = .037$) and PR ($P = .022$) status. No IR sign was associated with HER2 status. Triple-negative (ER-negative, PR-negative, and HER2-negative) cancers tended to show higher IR1 scores compared to other types of cancers ($P = .029$).

CONCLUSION:

Breast IR findings were associated with ER and PR status of breast cancers. Triple-negative cancers more frequently featured higher IR1 scores than other types of cancers.

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