



SecondLook Digital

Performance of Computer-Aided Detection Applied to Full-Field Digital Mammography in Detection of Breast Cancers

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Objective

The aim of this retrospective study was to evaluate performance of computer-aided detection (CAD) with full-field digital mammography (FFDM) in detection of breast cancers.

Materials and Methods

CAD (SecondLook v7.2, iCAD, Inc.) was retrospectively applied to standard mammographic views of 127 cases with biopsy proven cancers detected with FFDM (Senographe 2000, GE Medical Systems). CAD sensitivity was assessed in total group of 127 cases and for subgroups based on breast density, mammographic lesion type, mammographic lesion size, histopathology and mode of presentation.

Results

Overall CAD sensitivity was 91% (115 of 127 cases). There were no statistical differences ($p < 0.1$) in CAD detection of cancers in dense breasts 90% (53/59) versus non-dense breasts 91% (62/68). There was statistical difference ($p < 0.05$) in CAD detection of cancers that appeared mammographically as microcalcifications only versus other mammographic manifestations. CAD detected 100% (44/44) of cancers manifesting as microcalcifications, 89% (47/53) as no-calcified masses or asymmetries, 88% (14/16) as masses with associated calcifications, and 71% (10/14) as architectural distortions. CAD sensitivity for cancers 1-10mm was 84% (38/45); 11-20mm 93% (55/59); and >20mm (97% (22/23).

Conclusion

CAD applied to FFDM showed 100% sensitivity in identifying cancers manifesting as microcalcifications only and high sensitivity 86% (71/83) for other mammographic appearances of cancer. Sensitivity is influenced by lesion size. CAD in FFDM is an adjunct helping radiologists in the early detection of breast cancers.

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