Contrast-Enhanced Mammography Lexicon - Validation Results

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Contrast-Enhanced Mammography (CEM) has been introduced into clinical routine and has been shown to improve the diagnostic performance in comparison to mammography (MG) and being comparable to MRI. The BI-RADS lexicon provides descriptors regarding morphology and contrast enhancement behavior in MG and MRI. However, so far, no exact algorithm has been defined to estimate the level of suspicion of CEM detected lesions. In particular, as CEM contains in the low energy image both the morphologic information of a mammogram and information about contrast uptake, it is important to assess the contribution of the enhancement factor in CEM to the correct prediction of malignant lesions.

Here we present the results of a multicenter multi-reader retrospective study to assess the prediction accuracy of the existing morphologic MG descriptors for breast lesions and the contribution of enhancement from the MRI-descriptors to this prediction. We have tested the predictive accuracy and the inter-reader variation of each morphologic descriptor alone and that of their combination with and without the use of the enhancement information. The addition of enhancement to the prediction algorithm significantly increased its specificity without much loss of sensitivity. In conclusion, we suggest new algorithms for the prediction malignancy by CEM, which could be used in the formation of a new CEM subsection for the BI-RADS lexicon.

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