High resolution MRI of the breast at 3 T: which BI-RADS® descriptors are most strongly associated with the diagnosis of breast cancer?

To identify which breast lesion descriptors in the ACR BI-RADS® MRI lexicon are most strongly associated with the diagnosis of breast cancer when performing breast MR imaging at 3 T. 150 patients underwent breast MR imaging at 3 T. Lesion size, morphology and enhancement kinetics were assessed according to the BI-RADS® classification. Sensitivity, specificity and diagnostic accuracy were assessed. The effects of the BI-RADS® descriptors on sensitivity and specificity were evaluated. Data were analysed using logistic regression. Histopathological diagnoses were used as the standard of reference. The sensitivity, specificity and diagnostic accuracy of breast MRI at 3 T was 99%, 81% and 93%, respectively. In univariate analysis, the final diagnosis of malignancy was positively associated with irregular shape (p < 0.001), irregular margin (p < 0.001), heterogeneous enhancement (p < 0.001), Type 3 enhancement kinetics (p = 0.02), increasing patient age (p = 0.02) and larger lesion size (p < 0.001). In multivariate analysis, significant associations with malignancy remained for mass shape (p = 0.06), mass margin (p < 0.001), internal enhancement pattern (p = 0.03) and Type 3 enhancement kinetics (p = 0.06). The ACR BI-RADS® breast lesion descriptors...
that are mostly strongly associated with breast cancer in breast MR imaging at 3 T are lesion shape, lesion margin, internal enhancement pattern and Type 3 enhancement kinetics. 3 Tesla breast MRI allows an accurate diagnosis of breast cancer. The BI-RADS® descriptors help provide a confident diagnosis. The shape, margin, enhancement pattern and kinetics are the most important features. An irregular shape and margin, heterogeneous enhancement and type-3 kinetics indicate malignancy.