

SUMMARY

[Role of Diffusion-Weighted Magnetic Resonance Imaging in the diagnostic of breast lesions]

BACKGROUND: Magnetic resonance imaging (MRI) assists the screening and diagnosis of patients with breast cancer. The diffusion weighted imaging (DWI) measures the random motion of water molecules within a voxel of tissue and can be a useful tool for the differentiation between benign and malignant lesions.

HYPOTHESIS: The objective of this study was to evaluate the role of DWI MRI in characterizing breast lesions.

METHODS: After the approval of the institution's Ethics Review Board, we reviewed all breast MRI performed at the Department of Imaging, from August 2010 to December 2013. Inclusion criteria was patients with lesions identified on MRI that were subsequently submitted to percutaneous or surgical biopsy. MRI was performed with a 1.5-T unit using a standard protocol including DWI ($b=750$ s/mm²). The apparent diffusion coefficient (ADC) value was determined for all lesions. Mean ADC value of each lesion was correlated with histopathologic results. All data were stored in a database for statistical analysis.

RESULTS: 215 patients were included in the study. Isolated MRI showed 100% sensitivity and 54.9% specificity. The evaluation combined with DWI MRI showed 95.7% sensitivity and 96.4% specificity. The specificity of MRI DWI increased of the 54,9% to 96,4%. In conclusion, our results confirm that the use of DWI can assist in the characterization of breast lesions on MRI, particularly

those classified as BI-RADS 4, increasing the diagnostic accuracy of MRI and enabling reduction in unnecessary biopsies and increasing the confidence in the management of these patients.