Value of diffusion weighted imaging in the differential diagnosis of benign and malignant breast lesions at 3.0T MRI

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ABSTRACT. The aim of this study was to investigate the correlation between apparent diffusion coefficients (ADCs), the relative apparent diffusion coefficient (rADC), and the pathological prognostic factor human epidermal growth factor receptor 2 (HER-2) in patients with breast cancer. A total of 64 women with breast cancer underwent breast diffusion-weighted imaging. HER-2 expression was detected in histological specimens. The ADC value, rADC value, and HER-2 level were determined. The ADC and rADC values of the breast cancer group were $1.1495 \pm 0.1499 \times 10^{-3}$ and $0.6602 \pm 0.0853$, respectively. The differences in the ADC and rADC values between the two groups were statistically significant. There was no correlation between the ADC value and HER-2 expression in patients with breast cancer ($r = -0.508$, $P = 0.043$). However, the rADC value eliminated
the individual differences to some extent. Therefore, compared to
the ADC value, the rADC value had a better correlation with HER-2
expression.

**Key words:** Breast cancer; Magnetic resonance imaging; Genes; HER-2