

<https://doi.org/10.29289/259453942024V34S1026>

Diagnostic accuracy study of magnetic resonance breast spectroscopy

Ilse Franco de Oliveira¹, Rosemar Macedo Sousa Rahal¹, Ruffo Freitas-Junior¹, Camila Leal Diniz¹, Cristina Pinto Naldi Ruiz², Luiza Louza Normanha Cortizo Vidal³, Lizzi Naldi Ruiz², Marcelo Vilela Lauer²

¹Universidade Federal de Goiás, Advanced Breast Diagnostic Center, Medical School.

²São Marcelo Clinic.

³Aura Diagnostics.

Objective: The objective of this study was to analyze the diagnostic accuracy of breast magnetic resonance spectroscopy in comparison to breast biopsy. **Methodology:** Diagnostic accuracy study of qualitative cross-sectional analysis to perform breast magnetic resonance spectroscopy was carried out on 215 women over 18 years of age who agreed to participate in the study. Data were verified using normalized Q-Q plot analysis and standardized residual histogram. To analyze the patients' profile, the chi-square test, Student's t-test, and kappa index were performed for agreement between observers. The sensitivity and specificity of the spectroscopy were tested using the ROC curve compared with the results of the biopsies using SPSS version 26.0. The significance level was 5% ($p < 0.05$). **Results:** The most important findings were breast lumps with a total of 59.1%, followed by cysts with 18.1% of the total. Cho Ratio values in relation to creatine were found to be altered in 76.3% of results. The kappa index between observers was 99%. After biopsies, 74.4% of the results were malignant and 25.6% were benign. After analysis, 81.8% of the benign ones were BI-RADS[®] 3 and 41.3% of the malignant ones were BI-RADS[®] 4, with 19.4% of malignancies for BI-RADS[®] 4 and 12.5% for BI-RADS[®] 6, in this case, confirming the findings of previous exams. To evaluate the accuracy of the results found, an ROC curve analysis was performed in comparison with the breast biopsy which is considered the gold standard for diagnosing breast cancer. The Cho Ratio had an average sensitivity of 98% and an average specificity of 89%. Cho Integral also has a sensitivity of 98% and a specificity of 92%. **Conclusion:** As demonstrated in this study, after statistical analysis, the model was efficient in predicting breast diagnosis.

Keywords: breast cancer; accuracy study; MRI spectroscopy.