

Comparison of the Diagnostic Value of Whole-body MRI with Diffusion-weighted Images, ¹⁸F-FDG Positron Emission Tomography Combined with Computer Tomography and Whole Body Computer Tomography in Metastatic Breast Cancer

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Abstract

Breast cancer occupies a leading position in cancer morbidity and mortality. Accurate staging of the disease increases the chances of a high relapse-free survival. ¹⁸F-FDG PET/CT is considered the «gold standard» for diagnosing metastatic lesions in a number of cancers, including breast cancer. Diffusion-weighted imaging (DWI) is a specific pulse sequence that allows differentiation of the malignant process. The place of whole body DWI in the diagnostic algorithm for breast cancer is not defined. The aim of the work was to evaluate the possibilities of whole body DWI in comparison with ¹⁸F-FDG PET/CT and whole body CT for the local and distant spread of breast cancer. A comparison was made of diagnostic indicators, including sensitivity, specificity, positive and negative predictive value, accuracy. A whole body MRI with DWI demonstrated an advantage in diagnosing metastatic lesions of the liver and skeleton. The use of exclusively whole body MRI with DWI for staging and restaging of breast cancer is not justified due to the low specificity of detection of metastases of regional and distant lymph nodes. A whole body MRI with DWI may be recommended as a clarifying method after performing ¹⁸F-FDG PET/CT or whole body CT.

Key words: Breast Cancer, Magnetic Resonance Imaging, Positron Emission Tomography, Computed Tomography, ¹⁸F-fluorodeoxyglucose.

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