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The role of magnetic resonance imaging in detection of pathological complete remission in breast cancer patients treated with neoadjuvant chemotherapy: a meta-analysis

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Abbreviations: pCR = pathological complete remission; CE-MRI = contrast-enhanced magnetic resonance imaging; DW-MRI = diffusion-weighted magnetic resonance imaging; NAC = neoadjuvant chemotherapy; PET/CT = positron emission tomography-computed tomography; TP = true positive; FP = false positive; FN = false negative; TN = true negative; DOR = diagnostic odds ratio; AUC = area under the summary receiver operating characteristic curve; DCIS = ductal carcinoma in situ; pMRD = minimal residual disease.

Abstract

Purpose. Pathological complete remission to neoadjuvant chemotherapy has a role in guiding the management of breast cancer. This meta-analysis examines the accuracy of contrast-enhanced magnetic resonance imaging (CE-MRI) and diffusion-weighted magnetic resonance imaging (DW-MRI) in detecting the response to neoadjuvant chemotherapy, and compares CE-MRI with ultrasound, mammography, and positron emission tomography-computed tomography (PET/CT).

Methods. Medical subject heading terms and relative key words were searched for to generate a compilation of eligible studies. The pooled sensitivity, specificity, diagnostic odds ratio, area under summary receiver operating characteristic curve (AUC) and Youden index ($Q*$ index) values were used to estimate the diagnostic efficacy of CE-MRI, DW-MRI,