

Prognostic Value of Left Ventricular Global Longitudinal Strain on Speckle Echocardiography for Predicting Chemotherapy-Induced Cardiotoxicity in Breast Cancer Patients: A Systematic Review and Meta-Analysis

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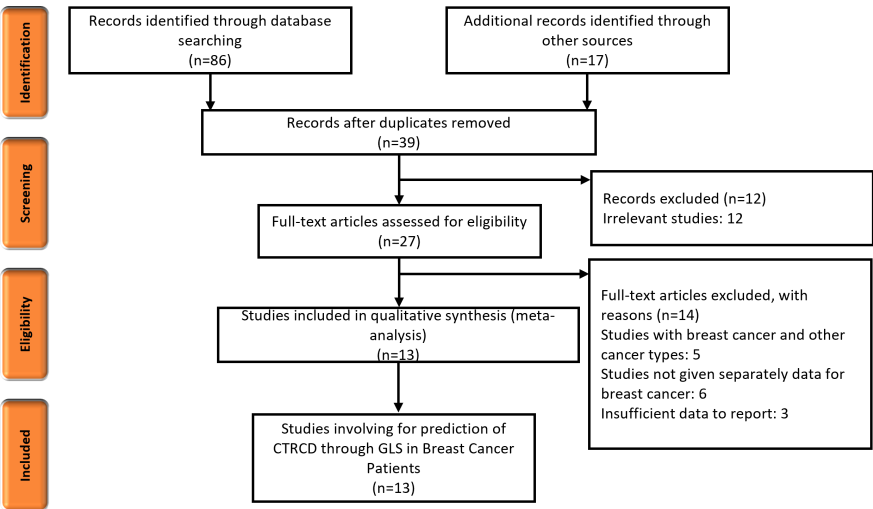
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Abstract

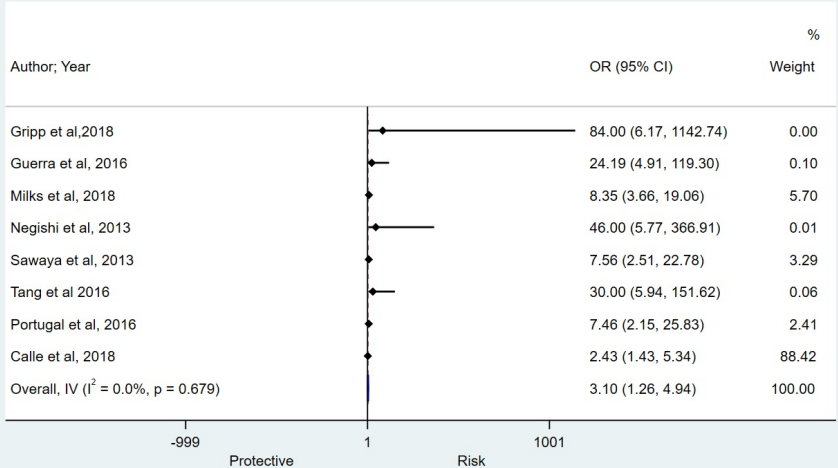
Background: Literature suggests that left ventricular global longitudinal strain (LV-GLS) on speckle echocardiography has the potential to predict cardiotoxicity amongst breast cancer patients receiving chemotherapy such as anthracycline, taxane, cyclophosphamide, and trastuzumab. Our study aimed to collect evidence for the prognostic value of LV-GLS for predicting chemotherapy-induced cardiotoxicity in breast cancer patients. **Methods:** A detailed search of the PubMed, Google Scholar, Cochrane Library, and Scopus databases was conducted for published articles up to August 31, 2022. In our meta-analysis, we looked at 13 studies with a total of 1007 breast cancer patients getting chemotherapy that looked at the predictive value of GLS. **Results:** Absolute GLS change during treatment showed a pooled sensitivity of 84% (95% CI: 74% to 91%) and a pooled specificity of 77% (95% CI: 68% to 84%). For a relative change in GLS, we observed a pooled sensitivity of 76% (95% CI: 56% to 89%) and a pooled specificity of 83% (95% CI: 73% to 90%). For an absolute change in GLS, we observed a positive likelihood ratio (LR), and the negative LR was 4 and 0.21. SROC with prediction and confidence intervals represents a promising summary area under the curve (sAUC) of 0.88, 95% CI ranges from 0.85 to 0.91 for absolute change in GLS, as well as for relative change (sAUC, 0.87, 95% CI 0.84 to 0.90). **Conclusion:** Our results demonstrated an estimation of LV-GLS after the beginning of required chemotherapy, including anthracyclines and trastuzumab, had a promising prognostic value for predicting the likelihood of CTRCD. To confirm our findings, well-designed prospective adequately powered diagnostic randomised trials are necessary.

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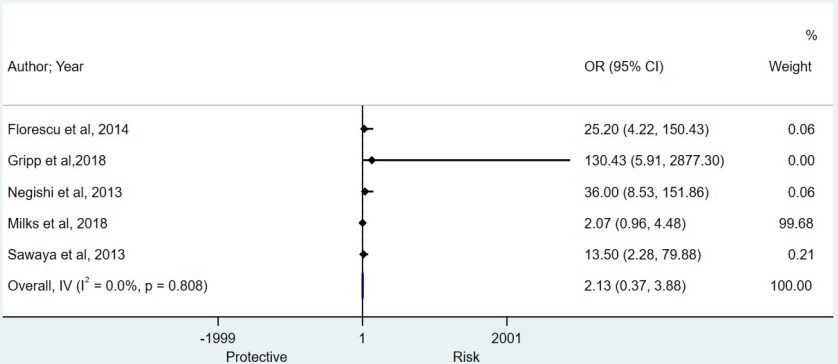
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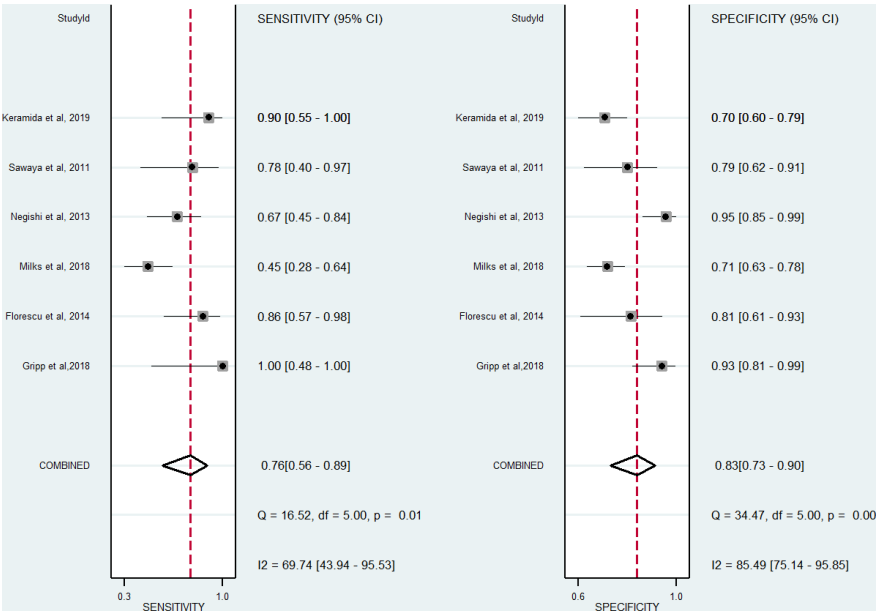
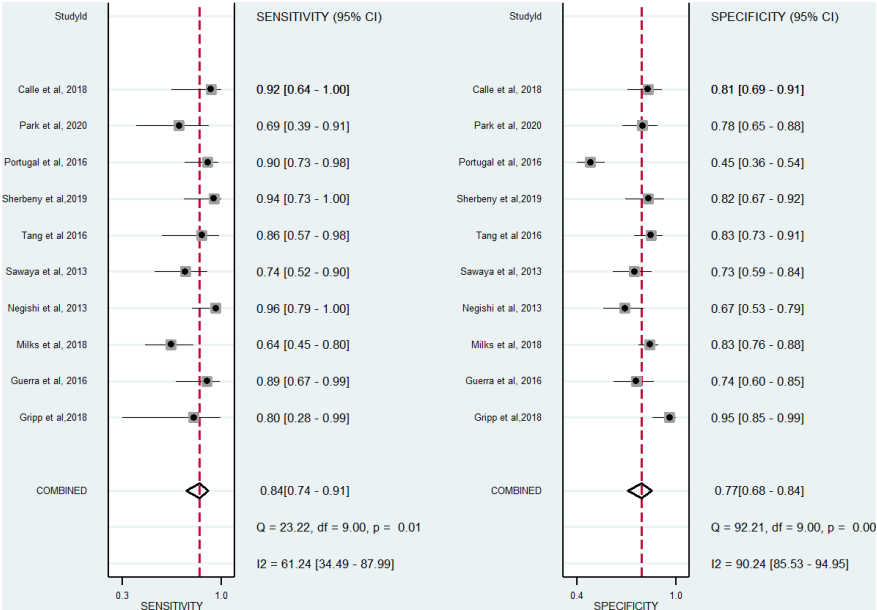


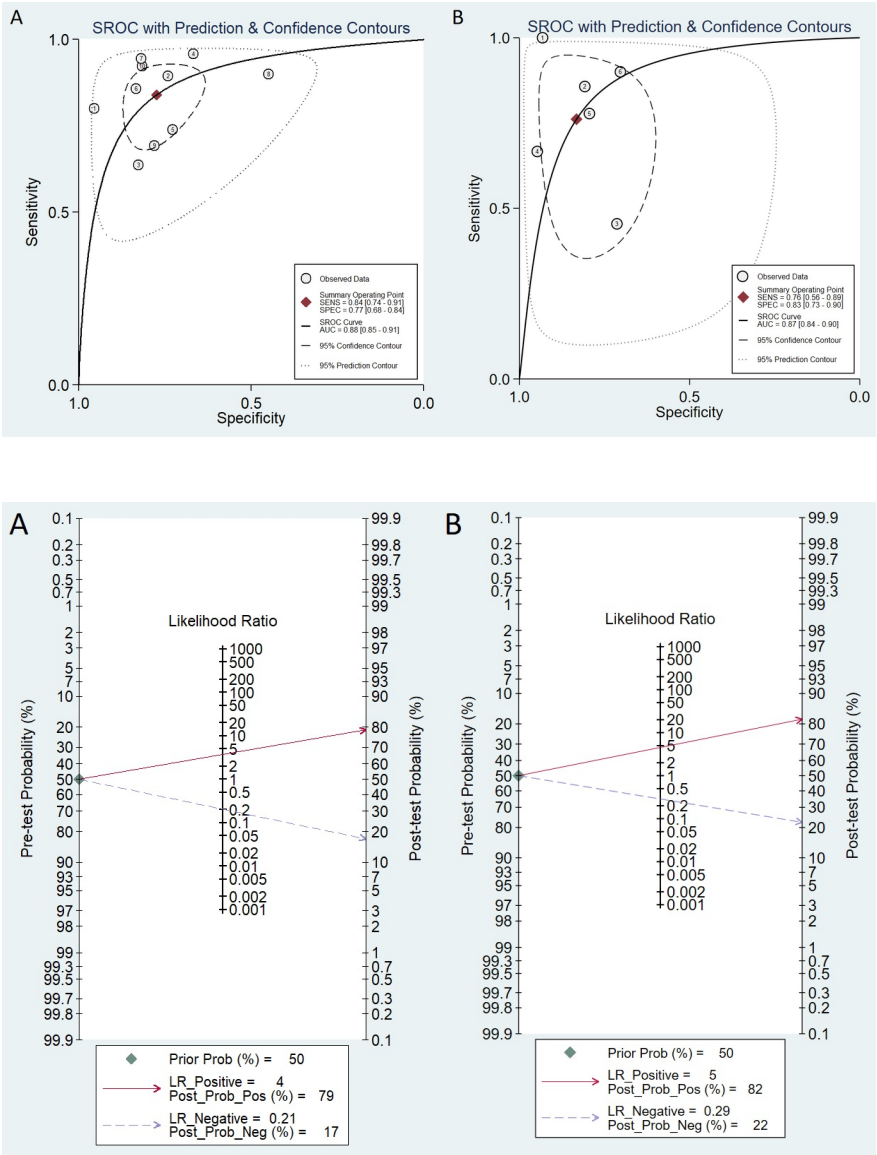
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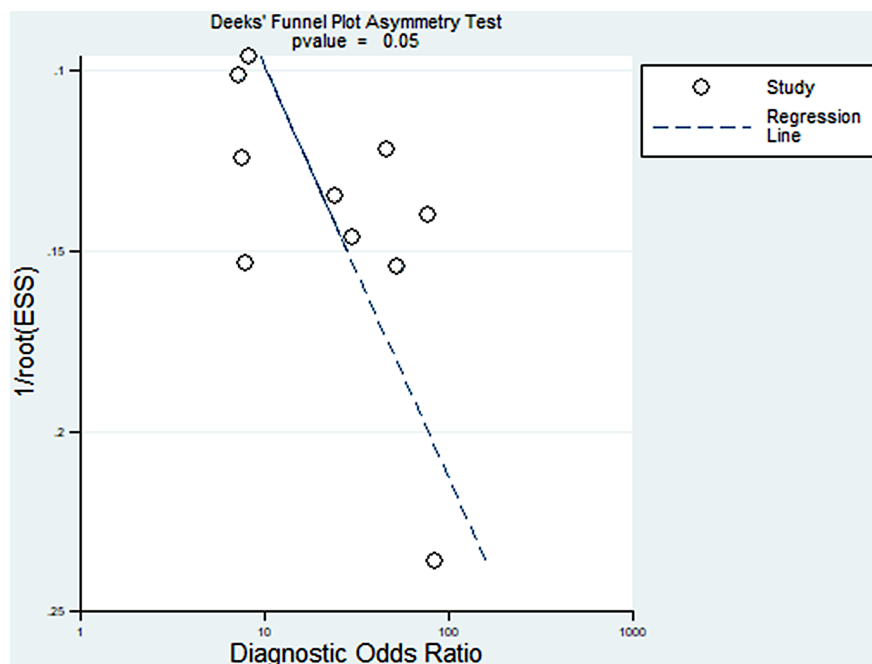


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