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## Diagnostic accuracy of ultrasound and mammography in predicting complete pathological response in post neoadjuvant non-palpable breast cancer

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**Background:** Neoadjuvant chemotherapy is the mainstay for treatment of locally advanced breast cancer as it reduces the size of the lesion prior to surgery; making it amenable to treatment by conservation. Accurate prediction of response to neoadjuvant chemotherapy is critical in surgical planning of non-palpable cancers. Mammography and ultrasound are the modalities used for this purpose. We assessed the accuracy of both these techniques to predict complete pathological response and compared the two techniques as well.

**Methods:** We retrospectively reviewed the data of 225 patients diagnosed with stage 2 or locally advanced breast tumor. These patients had no palpable lesion post neoadjuvant chemotherapy and were selected for sono or stereo guided wire localization as a part of breast conservation treatment. All the patients were evaluated by sono mammogram at diagnosis and at the time of procedure after chemotherapy. Patients with complete mammographic (mCR) and sonographic (sCR) response were correlated with pathological complete response (pCR). Agreement between predicted radiological and pathological response, as well as sensitivity and specificity was calculated separately for both imaging modalities.

**Results:** Eighty one out of 225 patients demonstrated pCR which is defined as no residual microscopic or macroscopic tumor foci. mCR was achieved in 66% of patients and sCR in 60% of patients. Kappa method was used to calculate the agreement between mammography and sonography in predicting pCR as well as to individually correlate mCR and sCR with pCR. The sensitivity, specificity, PPV, NPV of mammography in predicting pCR was 65%, 80%, 66% and 79% respectively. The sensitivity, specificity, PPV and NPV of sonography in predicting pCR was 59%, 83%, 68% and 77% respectively. The sensitivity, specificity, PPV and NPV of combined mammography and sonography was 65%, 86%, 72% and 81% respectively.

**Conclusion:** Both mammography and ultrasound are important in assessing tumor response post neoadjuvant chemotherapy. Mammography is more sensitive while sonography demonstrates better specificity. However the combination of sono mammogram increased the specificity of the study. The agreement of pCR with mCR and sCR was moderate.

### Biography

Waqas Ahmad is currently working as Radiology Resident in Shaukat Khanum Cancer Memorial Hospital. He has completed his MBBS in 2011. Nationally, he has presented few posters and couple of international papers and posters in various conferences including ECR (European Radiology Conference 2016), RSP (Radiological Society of Pakistan 2015 and 2016), PAIRS Conference (Pan Arab Interventional Radiology Society 2016) and Annual Symposium of Shaukat Kahanum Memorail Cancer Hospital in 2014 and 2015.

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