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**Scientific Abstract**

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**Mammographic Breastdensity And Its Relation To Risk Of Cancer**

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**Objectives:**

- To determine the cut-off value of percentage mammographic breast density (BD) at which the lesions are missed on the X-ray mammogram but found on Ultrasonography (USG)
- To correlate qualitative and quantitative assessment of BD

**Materials and Methods:**

This is a retrospective study which was conducted on 180 participants who were referred for mammogram and USG with age ranging from 30 to 70 years. Postoperative cases were excluded from the study. Qualitative analysis was done by two Radiologists who graded the BD according to Breast Imaging Reporting and Data System Atlas (BIRADS). Quantitative analysis was done by automatic segmentation method using 3D slicer software for both CC (Craniocaudal) and MLO (Medio-lateral oblique) views. The cut-off value for BD was calculated using Receiver Operator Characteristic (ROC) Curve. The correlation between qualitative and quantitative analysis was done using kappa test.

**Results:**

The cut-off value for the X-ray mammographic breast density was 7.6. The kappa value was 0.82 which showed there was good agreement between the Qualitative and Quantitative method of assessment by the Radiologists and Automatic segmentation method. There was good agreement  $k=0.78$  between the BIRADS categories assigned by two radiologists.

**Conclusion:**

Our study found that the percentage BD at which the lesions were missed on X-ray mammogram was 7.6, above this density there may be a risk of breast cancer which requires USG and further follow up. Mammographic BD assessed with the automatic segmentation method used in our study could be useful in assigning BIRADS density categories.