EVALUATION OF AVERAGE GLANDULAR DOSE IN RELATION TO BODY MASS INDEX AND MENOPAUSAL STATUS IN DIGITAL BREAST TOMOSYNTHESIS

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Mammographic quality control involves estimation of average dose to the glandular tissues of the breast. Present study was conducted at the Nawaloka Hospital, Colombo, Sri Lanka with the 109 women who attended mammographic screening. Main objective was to investigate the relationship between AGD (Average Glandular Dose) and Body Mass Index (BMI) in Digital Breast Tomosynthesis (DBT). Data on participants were collected by incorporating a structured questionnaire. Height (cm) and weight (kg) of each participant was used to estimate the BMI. Average dose to the glandular tissues (mGy) of the breasts was recorded from the DBT computer system. Majority of participants belonged to overweight and obese BMI categories while none belonged to lean category. Premenopausal women allotted to normal, overweight and obese BMI categories had their mean BMI of 21.27 kg/m^2, 25.63 kg/m^2 and 30.84 kg/m^2 respectively. The counterpart postmenopausal women had mean BMI of 21.85 kg/m^2, 25.17kg/m^2 and 31.12kg/m^2 respectively. Relationship between AGD and BMI during MLO (Mediolateral oblique) views in both the pre and post-menopausal categories was significant (r=0.64, 0.53, 0.40, 0.30 and P=0.00 to 0.03). The study did not reveal a significant correlation of BMI to AGD at right craniocaudal views (RCC) in both categories (P=0.19 and 0.45). However, the correlation was significant during left craniocaudalview (LCC) in premenopausal women (r=0.33 and P=0.01). In contrast, relationship could not be established during LCC view in post-menopausal category (P=0.15). It is concluded that relationship of AGD and BMI holds a significant and positive relationship (r=0.64 to 0.30 and P=0.00 to 0.03) during MLO views in both the pre and post-menopausal women categories and LCC view in pre-menopausal category. But this matter has to be verified with higher population.

Keywords: Breast Cancer, Digital Breast Tomosynthesis, BMI, Menopausal State