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1064 – Comparison of average glandular dose between full-field digital mammography and digital breast tomosynthesis

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Introduction: Full-field digital mammography (FFDM), considered the most appropriate imaging modality for breast cancer screening, has limitations such as breast tissue density and image overlap. Digital breast tomosynthesis (DBT), when combined with FFDM images, reduces limitations in radiological assessment, although it implies an increase in radiation exposure.

Objective: To evaluate and compare the average glandular dose (AGD) used in FFDM and DBT, and to analyze factors that may influence it, including patient age, breast tissue density, compression force, and compressed breast thickness.

Methods: This was a retrospective cross-sectional study carried out at the Advanced Center for Breast Diagnosis (CORA) of the Hospital das Clínicas/Brazilian Hospital Services Company (EBSERH) and the School of Medicine at the Federal University of Goiás. AGD was measured in milligrays (mGy), and age was stratified into four groups (40–49, 50–59, 60–69, and ≥70 years). Examinations of 206 women, performed between January and December 2024 on the GE HealthCare Senographe Pristina equipment, were analyzed.

Results: A significant difference in AGD was observed between FFDM (1.77 mGy, standard deviation ± 0.39) and DBT (1.65 ± 0.37 mGy) ($dz=3.41$; $p<0.001$). Intra-individual analysis showed lower AGD in DBT across all age groups and breast density categories analyzed ($p<0.001$). A strong positive association was observed between breast thickness and AGD in both techniques (FFDM: $r=0.83$; DBT: $r=0.75$; $p<0.001$), while compression force showed a weak negative correlation (FFDM: $r=-0.32$; DBT: $r=-0.29$; $p<0.001$).

Conclusion: AGD was lower in DBT compared to FFDM. The factors analyzed influenced the variation in radiation doses for both FFDM and DBT; however, they were not associated with the observed difference in AGD between the techniques.

Ethics: Ethics Committee under Certificate of Presentation for Ethical Review 94935126.6.0000.5078.

Keywords: breast neoplasms; mammography; radiation dosage; breast density.