

Determinants of volumetric breast density in Chilean premenopausal women

Pereira, A., Garmendia, M.L., Uauy, R., Neira, P., López, S., Malkov, S., & Shepherd, J. (2017) *Determinants of volumetric breast density in Chilean premenopausal women. Breast Cancer Res Treat*, 162(2), 343–352. <https://doi.org/10.1007/s10549-017-4126-7>

Abstract

Purpose

High mammographic breast density (BD) is a strong risk factor of breast cancer; however, little is known in women under 40 years of age. Recently, dual-energy X-ray Absorptiometry (DXA) has been developed as a low-dose method to measure BD in young populations. Thus, our aims were to describe BD in relation to risk factors in Chilean women under 40 years old and to explore the equivalence of DXA to mammography for the measurement of BD.

Methods

We selected 192 premenopausal Chilean female participants of the DERCAM study for whom we have anthropometric, sociodemographic, and gynecologic-obstetric data. The subjects received both digital mammograms (Hologic) and breast DXA scans (GE iDXA). Mammographic BD was estimated using a fully automated commercial method (VOLPARA®) and BI-RADS. Breast DXA scans were performed using a standardized protocol and the % fibroglandular volume (%FGV) was estimated considering a two-compartment model of adipose and fibroglandular tissue.

Results

The mean age was 37 years (SD = 6.5) and 31.6% of the subjects were obese. The median %FGV and absolute FGV (AFGV) measured by DXA were 9% and 198.1 cm³ and for VOLPARA®, 8.6% and 58.0 cm³, respectively. The precision for %FGV after reposition was 2.8%. The correlation coefficients for %FGV, AFGV, and breast volume between DXA and mammography were over 0.7. Age and body mass index (BMI) were inversely associated with %FGV, and BMI was positively related to AFGV as estimated with DXA or mammography. We did not observe an association with gynecologic-obstetric characteristics, education, and %FGV and AFGV; smoking was only associated with AFGV as measured by VOLPARA®.

Conclusions

DXA is an alternative method to measure volumetric BD; thus, it could be used to continuously monitor BD in adult women in follow-up studies or to assess BD in young women.

Keywords: Breast cancer | Breast density | Dual-energy X-ray absorptiometry | Premenopausal women

Created: Jueves, 26 de Noviembre, 2020