What can mammograms tell us about breast cancer risk in asians

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ABSTRACT

Breast cancer is the most common malignancy among women worldwide. In Malaysia, incidence rates are rising, and survival rates are poor. In our limited resource setting, risk stratification may be leveraged as a suitable approach for optimizing screening strategies. One promising biomarker that may be useful for improving risk prediction models for breast cancer in our population is mammographic density (MD). MD reflects breast tissue composition and is associated with breast cancer risk. MD however remains underexplored in Asian populations. Drawing on data from The Malaysian Mammography Study (MyMammo) and The Malaysian Breast Cancer Genetics Study (MyBrCa), using both area-based and volumetric density measures from automated tools (STRATUS and Volpara), MD is shown to be strongly associated with risk, particularly in postmenopausal women. This presentation also highlights the ethnic differences in MD among Malaysian women and how these differences correlate with population-level breast cancer risk. Our genome-wide association studies (GWAS) reveal that less than half of previously reported MD-associated SNPs in Europeans replicate in Malaysians, and putative novel loci with potential biological significance are identified. Lifestyle factors such as breastfeeding, parity, and urbanization are also associated with MD in Malaysian women. While soy intake may benefit select subgroups, larger randomized trials are needed to confirm its protective role. Future work will include AI-based texture features mammogram analysis and integrated risk models to improve breast cancer risk prediction in Asian women.

Keywords: Mammographic density, asian, breast cancer, risk prediction, mammograms