

Current Era Screening Mammography Outcomes from the National Mammography Database, Involving Nearly 7 Million Examinations

Monday 11:30-11:40 AM | RC215-15 | Room: Arie Crown Theater

PURPOSE

Mammography is the standard imaging examination for breast cancer screening and has substantially reduced mortality from breast cancer. In the last decade, different interpretations of the evidence on outcomes have resulted in various screening guidelines and debate regarding the balance of benefits and risks of mammography screening. There is uncertainty about when to stop screening, as women ≥ 75 years were not included in randomized trials, limiting available data to mostly small observational studies. This knowledge gap may be informed by new large-scale evidence from the National Mammography Database (NMD), an up-to-date mammography outcomes database with data representing a large proportion of US states. The purpose of our study is to evaluate the relationship between patient age and screening mammography performance metrics in women age ≥ 40 years.

METHOD AND MATERIALS

Our HIPAA Compliant and IRB approved project analyzed data from 218 mammography facilities in 39 states in the NMD registry. The NMD receives clinical practice data including self-reported demographics, clinical findings, screening mammography interpretation, and biopsy results (the reference standard). Performance metrics calculated were cancer detection rate, recall rate, and positive predictive values for biopsy recommended (PPV2) and biopsy performed (PPV3).

RESULTS

We analyzed data for 6,980,054 screening mammograms performed between January 2008 and December 2014 in 3,416,075 women. Overall, we found a mean cancer detection rate of 3.65 per 1000 (95% CI: 3.60-3.69), recall rate of 10% (95% CI: 10-10%), PPV2 of 20% (95% CI: 19-20%), and PPV3 of 28% (95% CI: 28-29%). Based on increasing age, performance metrics demonstrate a gradual upward trend for cancer detection rate, PPV2 and PPV3, and downward trend in recall rate, until age 90 years.

CONCLUSION

The NMD provides up-to-date nationwide benchmarks for screening performance metrics. According to these metrics demonstrating preserved cancer detection, recall rate, and PPV, our study suggests that there is no clear age cut-point to inform the decision when to stop screening.

CLINICAL RELEVANCE/APPLICATION

The stability of screening mammography performance metrics in women aged 75-90 years, does not provide evidence for age-based mammography cessation but rather adds support for guidelines that encourage screening decisions based on individual patient values, co-morbidities, and health status.