Large Breast Cancers in Women Attending Regular Screening: Risk Factors and Implications for Prognosis

Wednesday 12:45-1:15 PM | BR252-SD-WEB1 | BR Community, Learning Center Station #1

PURPOSE

Ever since breast cancer screening was introduced there has been a debate about its utility. A recent study focused on the persisting high incidence of large tumors despite the introduction of population-based screening programs. In this study, we aim to identify risk factors associated with tumors not being detected until larger than 2 cm, and to examine the implications for long-term prognosis.

METHOD AND MATERIALS

We examined a population-based screening cohort of 2,358 cases of invasive breast cancer incident between 2001 and 2008. The main outcome was a tumor size larger than 2 cm, compared to smaller. Multiple adjusted odds ratios for the association between percent density (PD), body mass index (BMI) and other patient characteristics and the main outcome were estimated. We followed the patients until 2016, and estimated age-adjusted hazard ratios for disease progression – defined as the first of locoregional relapse, distant metastasis or death due to breast cancer. All analyses were stratified by detection mode.

RESULTS

For screen-detected cancers, both BMI (Odds Ratio (OR): 1.33 per 5 kg/m2) and PD (OR: 1.26 per 10%PD) were associated with having a large tumor at diagnosis. However, for interval cancers, only BMI (OR: 1.56) was associated with having a large tumor, while PD (OR 0.81) was associated with having a small tumor. Nulliparity was only significant among screen-detected cases (OR 1.45). Large tumors were associated with worse prognosis than smaller ones (Hazard Ratio (HR): 2.66). Women with higher BMI had worse prognosis than women with lower BMI - among interval cancers only (HR 2.01). PD showed no significant association with disease progression.

CONCLUSION

BMI is the only risk factor consistently associated with being detected with a tumor larger than 2 cm - overall, among screen-detected cancers and among interval cancers. Among interval cancers, BMI was associated with worse prognosis.

CLINICAL RELEVANCE/APPLICATION

In light of our findings, efforts to improve breast cancer screening by finding tumors while they are still small and improve prognosis, should focus on shortening the time interval between screenings for women with high BMI.