

Investigation of mammographic breast density as a risk factor for ovarian cancer.

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Abstract

BACKGROUND:

Endogenous hormones and growth factors that increase mammographic breast density could increase ovarian cancer risk. We examined whether high breast density is associated with ovarian cancer risk.

METHODS:

We conducted a cohort study of 724,603 women aged 40 to 79 years with 2,506,732 mammograms participating in the Breast Cancer Surveillance Consortium from 1995 to 2009. Incident epithelial ovarian cancer was diagnosed in 1373 women. We used partly conditional Cox regression to estimate the association between breast density and 5-year risk of incident epithelial ovarian cancer overall and stratified by 10-year age group. All statistical tests were two-sided.

RESULTS:

Compared with women with scattered fibroglandular densities, women with heterogeneously dense and extremely dense breast tissue had 20% and 18% increased 5-year risk of incident epithelial ovarian cancer (hazard ratio [HR] = 1.20, 95% confidence interval [CI] = 1.06 to 1.36; HR = 1.18, 95% CI = 0.93 to 1.50, respectively; P(trend) = .01). Among women aged 50 to 59 years, we observed a trend in elevated risk associated with increased breast density (P(trend) =

.02); women with heterogeneously and extremely dense breast tissue had 30% (HR = 1.30; 95% CI = 1.03 to 1.64) and 65% (HR = 1.65; 95% CI = 1.12 to 2.44) increased risk, respectively, compared with women with scattered fibroglandular densities. The pattern was similar but not statistically significant at age 40 to 49 years. There were no consistent patterns of breast density and ovarian cancer risk at age 60 to 79 years.

CONCLUSIONS:

Dense breast tissue was associated with a modest increase in 5-year ovarian cancer risk in women aged 50 to 59 years but was not associated with ovarian cancer at ages 40 to 49 or 60 to 79 years.