Factors Affecting Informed Decision-Making in Women with Increased Breast Cancer Risk or DCIS Pursuing Contralateral Prophylactic Mastectomy

Valente J, Stybio T, Hyde S, Lipscomb J, Gillespie TW

Despite lack of survival benefit, an increasing number of women diagnosed with ductal carcinoma in situ (DCIS) opt for removal of the unaffected breast in addition to the breast with known pathology, i.e. contralateral prophylactic mastectomy (CPM). Little is known about women's decision-making processes that contribute to this rising trend, particularly for DCIS. Further obscuring the decision is the highly variable terminology used to discuss breast cancer pathologies and treatments. The purpose of this study was to investigate factors impacting risk comprehension and decision-making related to increased risk for breast cancer or DCIS. We conducted a retrospective and prospective pilot study to evaluate women's perceived contralateral breast cancer risk, health literacy, numeracy, and comprehension of terms used in genetics and breast cancer. Clinical data such as breast MRI, genetic testing, family history, and breast cancer risk derived from predictive models were also collected. Women with DCIS and those high-risk for development of invasive breast cancer were eligible, and 68 patients participated. Of the cohort, 33 (48.5%) women considered pursuing CPM and 11 (16.2%) underwent CPM. Anxiety about cancer recurrence was the top reason for considering CPM. Undergoing CPM was significantly associated with plastic surgery consultation, increased 10-year breast cancer risk, genetic counseling, and genetic testing. The consideration of CPM was also associated with higher incomes. Numeracy, health and genetic literacy, and terminology scores were not significant predictors of CPM. Lastly, 83.8% of respondents stated DCIS qualified as breast cancer, but only 39.7% of patients correctly defined DCIS. When asked to interpret the phrase "indolent lesion of epithelial origin" (new terminology advocated to replace "DCIS"), 27.9% of respondents believed it referred to cancer, 47.1% did not, and 23.5% were unsure. Patients commonly thought "lesion" meant "skin wound" or "sore". Decision-making related to DCIS remains complex. Although CPM has not shown a survival advantage and can have significant complications, CPM rates continue to rise. Recognizing patients' knowledge of risk communication and terminology is vital to support shared and informed surgical decisions.

The Effect of Weight Change on Volumetric Measures of Mammographic Density

Hart V, Reeves KW, Sturgeon SR, Reich NG, Sievert LL, Kerlikowske K, Ma L, Shepherd J, Tice J, Sprague BL

The association between changing body mass index (BMI) and mammographic breast density is important to better evaluate how to adjust for BMI gain/loss in longitudinal studies of density and breast cancer risk. Increasing BMI has been associated with decreasing percent dense area but the effect on absolute dense area is unclear. No studies have explored a longitudinal association using volumetric density measurement. Methods: We examined the association between change in BMI and change in volumetric breast density among 24,556 women who received breast imaging at the San Francisco Mammography Registry from 2007–2013. Height and weight were self-reported at the time of mammography. Breast density was assessed using single x-ray absorptiometry (SXA) volumetric measurement. The cross-sectional and longitudinal associations between BMI and absolute dense volume (DV) and percent dense volume (PDV) were assessed using multivariable adjusted regression. Results: Women were primarily Caucasian (66%) or Asian (25%) and most were postmenopausal (64%) at time of first mammogram. In cross-sectional analysis, BMI was positively associated with DV ($\beta =$ 2.95 cm3, 95% CI, 2.69–3.21) and inversely associated with PDV ($\beta = -2.03\%$, 95% CI, $-2.09 - -1.98$). In longitudinal analysis, an annual increase in BMI was associated with an annual decrease in both DV ($\beta = -1.01$ cm3/year, 95% CI, $-1.59 - -0.42$) and PDV ($\beta = -1.17\%$/year, 95% CI, $-1.31 - -1.04$). Findings were consistent between pre- and postmenopausal women. The annual decrease in DV was strongest among premenopausal women who were initially overweight or obese ($P < 0.01$ for interaction by initial BMI). Conclusion: Our findings support an inverse association between change in BMI and change in PDV. Longitudinal studies of PDV and breast cancer risk, or those using PDV as an indicator of breast cancer risk, should consider adjusting for change in BMI. The association between increasing BMI and decreasing DV is unexpected and will require confirmation using volumetric methods.

Depression and Antidepressant Use in Relation to Breast Cancer Risk in the Nurses Health Study

Reeves KW, Okereke O, Qian J, Hankinson SE

Depression and antidepressant (AD) use have each been hypothesized to increase breast cancer risk, yet previous studies have not considered these exposures together. Thus, it is unclear whether increased risk due to depression may actually be attributable to AD use, or vice versa. Methods: We utilized data from 77,482 women enrolled in the prospective Nurses' Health Study cohort in which data on depression and AD use were collected simultaneously beginning in 2000. Women self-reported whether they had ever been diagnosed with depression by a clinician as well as their use of specific types of ADs. Self-reported breast cancer cases through 2012 were adjudicated and only confirmed invasive cases included as outcomes ($N = 2,567$). Logistic regression models were utilized to evaluate the effects of baseline depression and AD use, both independently and with mutual adjustment, on breast cancer risk. Results: The average age of participants was 66.2 (SD 7.1) years; 8.9% were clinically depressed and 8.7% used ADs. In separate models adjusted for age, body mass index, and menopausal status, we observed no statistically significant associations between depression (OR

0.94, 95% CI, 0.81–1.08) or AD use (OR 1.07, 95% CI, 0.93–1.22). When these exposures were included together in the same model, depression remained unassociated with breast cancer risk (OR 0.87, 95% CI, 0.74–1.03) while AD use exhibited a small, borderline significant increase in risk (OR 1.15, 95% CI, 0.98–1.35). The latter association remained consistent for selective serotonin reuptake inhibitors (SSRIs; OR 1.16, 95% CI, 0.96–1.39) but was not apparent for other classes of ADs (OR 1.07, 95% CI, 0.85–1.35). Conclusions: These initial results indicate that depression is not associated with breast cancer risk, while we could not exclude a slight increase in risk associated with SSRI use. Further analyses will update exposure information over follow-up and also evaluate whether associations differ by menopausal status or hormone receptor disease subtypes. Clarifying the effects of these exposures on breast cancer risk will provide critical information for the millions of women who are depressed and/or use ADs.

Adolescent Endogenous Sex Hormones and Breast Density in Early Adulthood

Jung S, Egleston LB, Chandler DW, Horn LV, Hylton MN, Paris K, Klifa CC, Lasser NL, Le Blanc ES, Shepherd JA, Snetselaar LG, Stanczyk FZ, Stevens VJ, Dorgan JF

During adolescence the breasts undergo rapid growth and development under the influence of sex hormones. Although the hormonal etiology of breast cancer is hypothesized, it remains unknown whether adolescent sex hormones are associated with adult breast density, which is a strong risk factor for breast cancer. METHODS: Percentage of dense breast volume (%DBV) was measured in 2006 by magnetic resonance imaging in 177 women aged 25–29 years who participated in the Dietary Intervention Study in Children from 1988–1997 and had sex hormones and sex hormone binding globulin (SHBG) measured in serum collected on 1–4 occasions between 8 and 17 years of age. Multivariable linear mixed-effect regression models were used to evaluate the associations of adolescent sex hormones and SHBG with %DBV. RESULTS: Dehydroepiandrosterone sulfate (DHEAS) and SHBG measured in premenarche serum samples were significantly positively associated with %DBV (all Ptrend ≤ 0.03) but not when measured in postmenarche samples (all Ptrend ≥ 0.42). The multivariable geometric mean of %DBV across quartiles of premenarcheal DHEAS and SHBG increased from 16.7% to 22.1% and from 14.1% to 24.3%, respectively. Estrogens, progesterone, androstenedione, and testosterone were not associated with %DBV pre- or post-menarche (all Ptrend ≥ 0.16). CONCLUSIONS: Our results suggest that higher DHEAS and SHBG levels during adolescence, particularly before the onset of menarche, are associated with higher %DBV in young women. Whether this association translates into an increased risk of breast cancer later in life is currently unknown.

E-cigarette and Traditional Cigarette Use Among Smokers During Hospitalization and 6 Months Later

Harrington KF, Cheong J, Hendricks S, Kohler C, Bailey WC

Use of electronic nicotine delivery systems, most commonly called e-cigarettes (e-cigs,) has been rising over the past few years, with the greatest use among traditional cigarette smokers. The utility and harm of this group of emerging tobacco products are under debate. While some propose them as novel tobacco cessation tools, others decry their potential for sustained addiction and negative health effects. We examined smokers' e-cig use and smoking behaviors at hospitalization and 6 months later. Methods: 979 smokers hospitalized at a tertiary care medical center were recruited to a longitudinal observational study and provided baseline data during hospitalization and 6-months later. Past 30-day (current) e-cig use and smoking rates at both baseline and 6-month follow-up were examined with t-tests. Chi square test examined baseline e-cig use and 6-month smoking status. Results: 823 (84.1%) participants provided data at both time points: mean age was 46 years; 53.6% were White, 44.0% were Black, and 2.5% other; 22.5% had less than a high school degree, 38.8% had a high school diploma/GED, and 38.7% had some college or more; 30.8% were married/domestic partner and 53.6% were male. Current e-cig use was reported by 171 (20.7%) at baseline and 246 (29.9%) at 6-month follow- up, with 98 (11.9%) reporting current e-cig use at both time points. At 6-months follow- up, 12.2% of baseline current e-cig users vs. 13.4% of baseline non-users reported quitting smoking ($P = 0.80$), with 22% of baseline e-cig users who quit still using e-cigs at 6–months follow-up. Baseline current e-cig users reported higher daily cigarette consumption (14.1 vs. 11.9; $P = 0.010$) at baseline but not 6-months later (10.3 vs. 9.8; $P = 0.619$); whereas, continuing smokers with current e-cig use at 6 months follow-up reported fewer cigarettes per day (8.4 vs. 10.5; $P = 0.008$). Conclusions: Among adult smokers, current e-cig use at hospitalization was associated with higher cigarette consumption at baseline but was not predictive of quitting or consumption (among continuing smokers) at 6-months follow-up. Further, current e-cig use at 6 months was associated with a greater reduction in cigarettes smoked per day among continuing smokers at 6-months after hospitalization.

Statewide Vaccine Registry Data Indicate High Number of Missed Opportunities for the HPV Vaccine Among Eligible Girls

Kepka D, Balch A, Warner E, Spigarelli M

This study investigates the rate of missed opportunities for the HPV vaccine among eligible girls using statewide vaccine registry data. Methods: Using data from the Utah Statewide Immunization Information System (USIIS) from 2008–2012 for approximately 55,000 girls ages 11–18, we assessed the frequency of missed opportunities (receipt of other recommended vaccinations such as TDap, MCV4, and/or flu and not the HPV vaccine)

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