BRCA Mutations and Other Factors Influencing Bilateral Mastectomy among Participants in the Inherited Cancer Registry (ICARE) Initiative

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## Breast and Ovarian Cancer Risk: BRCA Mutation Carriers vs. General Population



# Contralateral Breast Cancer Risks in BRCA Mutation Carriers

Age at Contralateral Breast Cancer (years)



Graeser et al. (2009. Contralateral breast cancer risk in *BRCA1* and *BRCA2* mutation carriers. J. Clin Oncol. 27(35):5887-92

Cumulative Risk of Contralateral Breast Cancer - 47.4% after 25 years



OR

### **1. Negative Result**

- Chance that cancer was due to a BRCA gene change goes down.
- There may still be a chance that cancer "runs in your family."

### the cat ate the rat



 Increased cance risk.

### the car ate the rat



**3. Inconclusive Result** Variant of Uncertain Significance (VUS)



 Cancer risk not completely known.

### the cat ate one rat

**Cancer Risk Reduction Measures** 





To evaluate factors associated with prophylactic mastectomy uptake including:

- BRCA mutation status
- Clinical variables (personal and family history of cancer)
- Demographic variables (education level, household income, etc.)

## Methods

### **Study Population**

- Females (Moffitt and Non-Moffitt patients) enrolled in the Inherited Cancer Registry (ICARE) Initiative who completed a baseline health questionnaire between June 2010 and March 2012.
- ICARE is a research registry that enrolls individuals at risk for developing inherited forms of cancer.

### Analysis

- Questionnaire data was available on 388 participants and was sub-grouped based on prior diagnosis of breast cancer and also by prophylactic mastectomy.
- Prophylactic mastectomy was defined as those who had a bilateral mastectomy and either: 1) no prior breast cancer diagnosis OR 2) unilateral breast cancer diagnosis.
- Descriptive statistics (frequencies, chi-squared values) were calculated to determine the clinical and demographic variables associated with the uptake of prophylactic mastectomy.



## Bilateral Mastectomy Status among ICARE participants

	Bilateral Mastectomy		
	Yes (n=184)	No (n=204)	P- Value
Age at Diagnosis			
≤ 50	79 (75.2%)	36 (64.3%)	
> 50	26 (24.8%)	20 (35.7%)	0.143
Positive Personal History of Breast Cancer			
Unilateral Breast Cancer	(78 (60.0%)	52 (40.0%)	0.004
Bilateral Breast Cancer	27 (87.1%)	4 (12.9%)	
No Personal History of Breast Cancer	79 (34.8%)	148 (65.2%)	
		Prophylactic Mastectomy n = 157	





# Uptake of Prophylactic Mastectomy vs. *BRCA* Mutation Status



## Evaluation of Clinical Variables with Prophylactic Mastectomy Status

	Prophylactic Mastectomy			
	Yes 157 (40.5%)	No 231 (59.5%)	P-Value	
Family History of Cancer				
Yes	145 (92.1%)	191 (82.7%)	0.022	
No	12 (7.6%)	40 (17.3%)		



## Evaluation of Demographic Variables with Prophylactic Mastectomy Status

	Prophylactic Mastectomy			
	Yes (n=157)	No (n=231)	P-Value	
Age	48.41 ± 9.65	49.475 ± 13.17	0.368	
Marital Status				
Married	112 (71.8%)	154 (66.7%)	0.286	
Other	44 (28.2%)	77 (33.3%)		
Education				
High School Graduate or Less	10 (6.4%)	27 (11.%)	0.080	
College/Graduate School	147 (93.6%)	204 (88.3%)		
Household Income				
≤\$49,999	31 (20.0%)	60 (26.3%)		
\$50,000 - \$89,999	37 (23.9%)	58 (25.4%)	0.251	
≥\$90,000 or more	75 (48.4%)	88 (38.6%)		
Prefer not to answer	12 (7.7%)	22 (9.60%)		
Children				
Yes	134 (85.4%)	180 (77.9%)	0.083	
No	23 (14.7%)	51 (22.0%)		

## Conclusions

## • Uptake of bilateral mastectomy is higher in

- Those with bilateral breast cancer
- Those diagnosed with breast cancer ≤50
- Uptake of prophylactic mastectomy is higher in
  - BRCA carriers versus non-carriers and those with VUS results
- The frequency of prophylactic mastectomy is higher in those with a family history of cancer.



- Analyze factors that influence the uptake of prophylactic oophorectomy and other risk management options, including cancer screening.
- Measure the level of knowledge about hereditary breast and ovarian cancer (HBOC) and its impact on the uptake of prophylactic procedures.









## Acknowledgments

### **Moffitt-Based Research Team**

### **Co-Authors**

- Tuya Pal, MD, FABMG
- Susan Vadaparampil, PhD, MPH
- Courtney Lewis, BS
- Devon Bonner, BA
- Andrea Doty, MPH

### Funding Source

• Bankhead- Coley (Grant# IBG-09)

