



Longitudinal Risk Management for Patients with Increased Risk for Breast Cancer

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Introduction

Breast cancer survivorship has seen improvements with advances in early detection and risk-management. For individuals with increased risk of breast cancer, guidelines include earlier and frequent screening, consideration of magnetic resonance imaging, and risk-reducing measures, including surgeries and chemoprevention. Prior studies focused on the relationships between genetic testing and treatment decisions, with less focus on the patient decision-making process and longitudinal risk-management. Therefore, this study aims to characterize the longitudinal management and evaluate the relationship between patient factors and likelihood of initiating risk-reducing behaviors in those with increased risk of developing breast cancer.

Methods and Materials

A retrospective study was conducted to evaluate all adult female patients who had at least one clinic visit with a surgical provider for discussion of breast cancer risk assessment at an academic center. Patients with prior history of breast cancer were excluded. Patient characteristics and risk-reducing strategies pursued at initial and follow-up clinic visits were recorded. A time-to-event analysis was performed, and hazard ratios were estimated to characterize associations between patient characteristics and time to pursuing risk-reducing care management.

Results

Initiation of Risk-Reducing Management

Change in management	N	Mean (Years)	Minimum (Years)	Maximum (Years)
To risk-reducing medication	29	2.5	0	11.7
To mastectomy	19	1.8	0	9.4

Table 1. Average time to initiate chemoprevention or mastectomy from routine breast cancer screening or high-risk imaging surveillance alone.

Results

Patient Characteristics and Likelihood to Initiate Risk-Reducing Management

Parameter	Hazard Ratio	95% CI	p-value
Age	0.98	(0.93, 1.03)	0.370
Insurance status			0.564
Private (reference)			
Medicare/Medicaid	0.50	(0.12, 2.02)	
Other	1.16	(0.50, 2.68)	
Alcohol use	1.84	(0.90, 3.78)	0.094
Smoking			0.968
Never (reference)			
Former	0.99	(0.11, 8.67)	
Current	1.13	(0.44, 2.87)	
Menopausal status			0.828
Premenopausal (reference)			
Perimenopausal	1.29	(0.41, 4.06)	
Postmenopausal	1.55	(0.31, 7.72)	
Hysterectomy	2.99	(1.20, 7.45)	0.019
Birth control use	0.49	(0.21, 1.12)	0.092
History of ADH, ALH, and/or LCIS	7.62	(3.21, 18.11)	<.001
Known gene mutation			<.001
Not tested (reference)			
Tested, result negative	1.16	(0.36, 3.70)	
Tested, result positive	5.99	(2.63, 13.64)	

*Abbreviations: LCIS, lobular carcinoma in situ. ALH, atypical lobular hyperplasia. ADH, atypical ductal hyperplasia. CI, confidence interval.

Table 2. Analysis of patient characteristics and likelihood to select a risk-reducing management (N=283).

Impact of Risk Calculators on Initiating Management

Risk Calculator	N	Hazard Ratio	95% CI	p-value
Gail	76	1.03	(0.96, 1.11)	0.402
Claus	106	1.02	(0.95, 1.09)	0.670
Tyrer-Cuzick	100	1.04	(0.99, 1.08)	0.114

Table 3. Analysis of patients with increased breast cancer risk (as determined by various risk calculators) and likelihood to select a risk-reducing management strategy.

Discussion

In the cohort, 283 participants had one or more follow-up visits.

- Forty-eight (17.0%) participants ultimately changed their initial treatment strategy to a risk-reducing management.

In addition to patients with known genetic mutations and history of high-risk proliferative changes, patients who had a previous hysterectomy were more likely to pursue risk-reducing management.

- Factors such as childbearing consideration, which have been shown to hinder initiation of surgery and chemoprevention, are absent in these patients.

Patients with greater risk, as determined by risk calculators, were not necessarily more likely to engage in risk-reducing care management.

- It is still important to utilize these findings as a means to convey a perceived level of risk to patients and to potentially motivate behaviors such as surveillance screening.

Conclusions

- Looking at changes in care longitudinally, we find that patients who initially pursue one care management strategy may change to a more proactive risk-reducing strategy over several years.
- An understanding of the trajectories and influences in risk management can help guide providers in their continuous support and education of patients in the various ways to minimize increased risk of breast cancer.

References

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