HIGH-RISK BREAST CANCER CLINIC

Emily Trondson, APRN CNS
AHCI, St. Paul, River Falls, Hastings
2/24/2024

Allina Health
CANCER INSTITUTE

1

No Disclosures

2

OBJECTIVES

Define	Define high risk
Summarize	Summarize elements that affect risk of breast cancer
Identify	Identify appropriate patients for referral to high-risk breast cancer clinic
Discuss	Discuss typical high risk screening regimen
Determine	Determine appropriate patients to consider risk reducing therapy and/or risk reducing surgery

Allina Health CANCER INSTITUTE

3

HIGH RISK: DEFINED

- Family history: Two part visit; genetic counselor followed by breast provider
  - Known genetic predisposition
    - Genetic mutations that increase lifetime risk of breast cancer
      - ATM, BRCA1, BRCA2, CDH1, CHEK2, NF1, PALB2, PTEN, RAD51C, RAD51D, STK11, TP53
  - Lifetime risk of breast cancer greater than/equal to 20%
    - Determined by risk assessment models
  - Elevated short term risk
    - 5 year risk of breast cancer on Gail Model greater than/equal to 1.7%
    - 10 year risk of breast cancer on IBIS Model greater than/equal to 5%
  - Risk assessment repeated every 5 years or sooner if changes in family history
- Personal history of breast atypia: do NOT need to see genetics unless also has significant family history
  - Usually diagnosed on a breast biopsy after abnormal imaging
  - Sometimes found incidentally (i.e. involved with other benign biopsy findings or on breast reductions)
- Personal history of thoracic radiation treatment between ages 10-30
- **AND: Life expectancy greater than 10 years**

Allina Health CANCER INSTITUTE

4

4

ELEMENTS OF RISK: INCREASED RISK

- Increasing age
- Ethnicity/race
- Lifestyle factors
  - Obesity
  - ETOH use
  - Current/prior use of estrogen and or progesterone hormonal agents
- Reproductive history
  - Younger age at menarche/older age at menopause
  - Nulliparity/lower parity
  - Older age at first live birth
- Higher breast density
- Number of prior breast biopsies
- Environmental exposures *

Allina Health CANCER INSTITUTE

NCCN, Breast Cancer Risk Reduction v.1.2024

5

5

ELEMENTS OF RISK: DECREASED RISK

- Diet/exercise to have a healthy weight
- Multiparity at younger age*
- Breastfeeding
- Menopause before age 45
  - Salpingo-oophorectomy at young age (consider with certain genetic mutations)*
- Risk reducing medications (chemoprevention)
- Prophylactic mastectomy*

Allina Health CANCER INSTITUTE

NCCN, Breast Cancer Risk Reduction v.1.2024

6

6

FAMILY HISTORY: WHO QUALIFIES FOR ASSESSMENT

- Family history of known genetic mutation linked with risk of breast cancer
- Three or more relatives with a breast cancer diagnosis on the same side of the family
- Two or more relatives on the same side of the family: one with breast cancer AND one with either ovarian, pancreatic, and/or advanced prostate cancer
- Family history of bilateral breast cancer
- Family history of early onset breast cancer (younger than 50)
- Family history of male breast cancer

"based on" NCCN Genetic/Familial High Risk Assessment V.2.2024

7

7

HIGH RISK MANAGEMENT: FAMILY HISTORY

- Lifetime risk greater than 20% and life expectancy greater than 10 years
  - Annual 3D Mammogram
    - 10 years younger than youngest family member but not prior to age 30* OR age 40 (whichever comes first)
  - Annual MRI; offset by mammogram by 6 months
    - 10 years younger than youngest family member typically not prior to age 25*; or age 40 (whichever is first)
    - Best for higher breast density
  - Consider whole breast screening ultrasound in place of MRI if patient unable/unwilling to complete MRI
  - Can consider prophylactic mastectomy
- Elevated short term risk
  - Gail Model 5 year risk ≥ 1.7%
    - Annual 3D mammogram; Consider risk reducing medication
  - IBIS Model 10 year risk ≥ 5%
    - Annual 3D mammogram; Consider risk reducing medication
- Genetic predisposition
  - Depends on specific mutation and family history
- All: clinical encounter every 6-12 months; breast awareness

Allina Health CANCER INSTITUTE

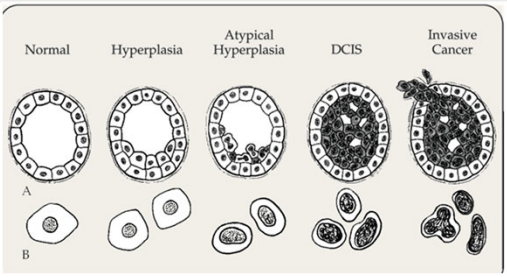
NCCN, Breast Cancer Screening and Diagnosis 3.2023

8

8

BREAST ATYPIA

- Pathology diagnosis
  - Primary finding on biopsy from abnormal imaging
  - Incidental finding on biopsy from abnormal imaging
  - Incidental finding after excisional biopsy
  - Incidental finding after breast reduction



- Types of atypia
  - Atypical ductal hyperplasia (ADH)
    - If found on core needle biopsy, requires excisional biopsy
    - Increased risk of 1% per year
  - Atypical lobular hyperplasia (ALH)
    - Typically does not require excisional biopsy unless it is multifocal or discordant
    - Increased risk of 1% per year
  - Lobular carcinoma insitu (LCIS)
    - "Classic" typically does not require excisional biopsy unless it is multifocal or discordant
    - "Pleomorphic" requires excisional biopsy
    - Increased risk of 2% per year

Risk is suspected to "top out" around 30%

Allina Health CANCER INSTITUTE

NCCN; Hartmann et al., 2015

9

9

HIGH RISK MANAGEMENT: ATYPIA

- Annual 3D Mammogram
  - Start at age of diagnosis, typically not prior to age 30
- Annual MRI; offset by mammogram by 6 months
  - Start at age of diagnosis, typically not prior to age 25
- Consider whole breast screening ultrasound in place of MRI if patient unable to complete MRI
- Clinical encounter every 6-12 months; breast awareness
- Risk reducing strategies
  - Risk reducing medication (chemoprevention) strongly recommended
  - Can consider risk reducing mastectomy, but not strongly recommended

Allina Health CANCER INSTITUTE

NCCN, Breast Cancer Screening and Diagnosis 3.2023

10

10

HIGH RISK MANAGEMENT: HISTORY OF THORACIC RADIATION (10-30 Y.O.)

- Patient < 25 years old
  - Annual clinical encounter to start 8 years after radiation therapy
  - Breast awareness
- Patient ≥ 25 years old
  - Clinical encounter every 6-12 months beginning 8 years after radiation therapy
  - Annual screening mammogram (3D)
    - Beginning 8 years after RT but not prior to age 25
  - Annual breast MRI
    - Beginning 8 years after RT but not prior to age 25
  - Consider alternative imaging if patient unable to undergo MRI
  - Breast awareness
  - Risk reducing strategies
    - Risk reducing medication strongly recommended
    - Can consider prophylactic mastectomy

NCCN, Breast Cancer Screening and Diagnosis 3.2023

Allina Health CANCER INSTITUTE

11

11

CHEMOPREVENTION: BASICS

- Age ≥ 35 and life expectancy ≥10 years
- Family history
  - Gail Model 5 year risk ≥ 1.7%
  - IBIS Model 10 year risk ≥ 5%
  - Risk reduction is approximately 50%
- Genetic predisposition
  - Very limited data
- Atypia
  - ADH, ALH: risk reduction up to 50-86% (dose)
  - LCIS: risk reduction 50%
- Thoracic radiation
  - No specified risk reduction amount

Allina Health CANCER INSTITUTE

12

12

CHEMOPREVENTION: SELECTIVE ESTROGEN RECEPTOR MODULATORS

- **Tamoxifen : Pre and post menopausal**
  - Two doses: 5mg (“low dose”; 3-5 years) and 20mg (“traditional dose”; 5 years)
  - Tamoxifen contraindicated with pregnancy or those planning a pregnancy. Increases chance of pregnancy
  - Baseline and annual GYN exam if uterus still present (most important after age 50/postmenopausal). Slightly increased risk of endometrial cancer with 20mg dose.
  - Can interact with certain anti-anxiety/anti-depression medications.
- **Raloxifene: Post menopausal only**
  - One dose: 60mg (5+ years)
  - Can interact with levothyroxine

Both are contraindicated with a personal or strong family history of: blood clots (DVT, PE), thrombotic stroke, TIA, known inherited clotting trait

Side Effects (most common): hot flashes, mood changes (irritability), weight gain, nausea, fatigue, arthralgias, hair thinning. Beneficial side effect: can help preserve/increase bone density

Allina Health CANCER INSTITUTE

NCCN Breast Cancer Risk Reduction v1.2024

13

13

RISK REDUCTION TABLES

5-Year Projected Risk of IBC (%)	Tamoxifen v Placebo (with uterus) 50-59	60-69	70-79	Raloxifene v Placebo (with uterus) 50-59	60-69	70-79
1.5	-133	-310	-325	21	-11	-15
2.0	-105	-283	-298	43	11	7
2.5	-78	-255	-271	65	33	29
3.0	-51	-228	-244	86	55	51
3.5	-25	-202	-217	108	76	71
4.0	3	-175	-190	128	97	93
4.5	29	-148	-164	150	119	115
5.0	56	-121	-137	172	140	136
5.5	83	-95	-111	193	161	157
6.0	109	-69	-84	214	183	179
6.5	135	-42	-58	236	204	199
7.0	162	-15	-32	256	225	221

5-year projected risk of IBC is ≥ 1.67%. Using BCPT data and WHI baseline rates. Combining RR from BCPT and STAR using WHI baseline rates

Strong evidence of benefits outweighing risks
Moderate evidence of benefits outweighing risks
Benefits do not outweigh risks

5-Year Projected Risk of IBC (%)	Tamoxifen v Placebo (without uterus) 50-59	60-69	70-79	Raloxifene v Placebo (without uterus) 50-59	60-69	70-79
1.5	3	-53	-93	27	2	-4
2.0	31	-26	-66	49	23	18
2.5	57	2	-39	71	45	40
3.0	84	29	-12	92	67	62
3.5	111	56	15	114	88	82
4.0	138	83	42	134	109	104
4.5	164	109	69	156	131	126
5.0	191	136	96	178	152	147
5.5	218	163	121	199	173	168
6.0	244	189	148	220	195	190
6.5	270	215	175	242	216	210
7.0	297	242	201	262	237	232

5-year projected risk of IBC is ≥ 1.67%. Using BCPT data and WHI baseline rates. Combining RR from BCPT and STAR using WHI baseline rates

Strong evidence of benefits outweighing risks
Moderate evidence of benefits outweighing risks
Benefits do not outweigh risks

5-Year Projected Risk of IBC (%)	Tamoxifen v Placebo (without uterus) 50-59	60-69	70-79	Raloxifene v Placebo (without uterus) 50-59	60-69	70-79
1.5	-67	-111	-200	-21	-58	-101
2.0	-40	-84	-173	1	-36	-79
2.5	-12	-56	-145	23	-14	-57
3.0	15	-29	-118	45	8	-36
3.5	42	-3	-92	66	29	-14
4.0	69	25	-65	87	50	7
4.5	95	51	-38	109	72	29
5.0	122	78	-11	130	93	50
5.5	149	104	15	151	114	71
6.0	175	131	42	173	136	93
6.5	201	157	68	194	156	113
7.0	228	183	94	215	178	135

5-year projected risk of IBC is ≥ 1.67%. Using BCPT data and WHI baseline rates. Combining RR from BCPT and STAR using WHI baseline rates

Strong evidence of benefits outweighing risks
Moderate evidence of benefits outweighing risks
Benefits do not outweigh risks

5-Year Projected Risk of IBC (%)	Tamoxifen v Placebo (with uterus) 50-59	60-69	70-79	Raloxifene v Placebo (with uterus) 50-59	60-69	70-79
1.5	-144	-319	-349	-25	-68	-108
2.0	-117	-292	-322	-3	-46	-86
2.5	-89	-264	-294	19	-24	-64
3.0	-62	-237	-267	41	-3	-43
3.5	-36	-211	-241	62	19	-21
4.0	-9	-184	-214	83	40	-1
4.5	18	-157	-187	105	62	22
5.0	45	-130	-160	126	83	43
5.5	72	-105	-135	147	104	64
6.0	98	-78	-108	169	126	86
6.5	124	-51	-81	190	146	106
7.0	151	-25	-55	211	168	128

5-year projected risk of IBC is ≥ 1.67%. Using BCPT data and WHI baseline rates. Combining RR from BCPT and STAR using WHI baseline rates

Strong evidence of benefits outweighing risks
Moderate evidence of benefits outweighing risks
Benefits do not outweigh risks

Allina Health CANCER INSTITUTE

Freedman et al, 2011

14

14

CHEMOPREVENTION: AROMATASE INHIBITORS

- Post menopausal only
- Not first line; considered if patient not a candidate for SERMs
  - Need baseline and ongoing monitoring of bone density
- Limited data

- **Exemestane**: 25mg daily x 5 years
  - ~65% risk reduction (one study)
- **Anastrozole**: 1mg daily
  - ~53% risk reduction (one study)

Side effects (most common): Arthralgias, hot flashes, hair thinning, vaginal dryness, decreased bone density, cognitive changes ("brain fog")

NCCN Breast Cancer Risk Reduction v1.2024

Allina Health CANCER INSTITUTE

15

15

Coming Soon!

2024 Goal: "Mini" risk assessment to be completed at time of screening mammography for all patients coming to the Piper Breast Centers.

Allina Health CANCER INSTITUTE

16

16

MEET THE TEAM!

Genetic Counselors:

- Hallee Dickenson, CGC
- Andrea Edwards, CGC
- Megan Fesel, CGC
- Vickie Matthias Hagen, CGC
- Bonnie Hatten, CGC
- Greta Henry, CGC
- Allie Hentschell, CGC
- Cindy Lorentz, CGC
- Shanda Phippen, CGC
- Ellie Westfall, CGC
- Lauren Winter, CGC
- Elisabeth Wurtmann, CGC

Breast Providers

- Tess Abrahamson, PA
- Emily Coughlin, APRN NP
- Julia Curry, PA
- Nohemi Haben, PA
- Kristy Lichtenberg, PA
- Kathleen Sahli, PA
- Katie Schmitz, PA
- Abigail Toffoli, PA
- Emily Trondson, APRN CNS

Allina Health CANCER INSTITUTE

17

17

REFERENCES

- National Comprehensive Cancer Network Guidelines (NCCN.org)
  - Breast Cancer Screening and Diagnosis V. 3.2023
  - Breast Cancer Risk Reduction V. 1.2024
  - Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic V. 2.2024
- Freedman, A., Yu, B., Gail, M., Costantino, J., Graubard, B., Vogel, V., Anderson, G., McCaskill-Stevens, W. (2011) Benefit/risk assessment for breast cancer chemoprevention with raloxifene or tamoxifen for women age 50 years or older. *Journal of Clinical Oncology*, Jun 10;29(17):2327-33. doi: 10.1200/JCO.2010.33.0258.
- Hartmann, L., Degnim, A., Santen, R., Dupont, W., Ghosh, K. (2015). Atypical hyperplasia of the breast– Risk assessment and management options. *New England Journal of Medicine, Jan 1 372 (1):* 78-89 doi: 10.1056/NEJMsr1407164

doi: 10.1200/JCO.2010.33.0258. Epub 2011 May 2.

Allina Health CANCER INSTITUTE

18

18

19