EARLY STAGE BREAST CANCER

Epidemiology of breast cancer

BRAC

- 5-10% all breast cancers
- 10-20% male breast cancers
- Incidence in the general population is <<1%
- Incidence in Ashkenazi 2%, 10% if there is a family history
- 70% risk of breast cancer if BRAC +
- Risk if PALB2 5-9 fold increase

BRAC 1

- Identified in 1990
- Codes for suppressor gene
- Chromosome 17
- More often associated with triple negative disease
- Increased risk ovarian cancer (20-40 %), pancreatic (5%), less often cervical, uterine, and colon

BRAC 2

- Identified on 1997
- On chromosome 13
- Increases risk ovarian, pancreatic, stomach, gb, melanoma
- Tumor suppressor gene

Screening mammography

Screening mammography

- 17-40% reduction in mortality
- 10% false positives:8/10 resolved by additional views or U/S
- One of three biopsies diagnosed with malignancy

Screening recommendations general population

- Overall accuracy 78% age over 50 yo 83%
- ACS rec starting at 45 yo
- 50-74 yo every two years
- Greater than 75 yo continue screening for life expectancy >= 10 years

HIGH RISK SCREENING

Based on family hx-yearly starting at 40 yo

BRAC-MRI and mammogram yearly

Thoracic radiation-mammograms and MRI starting 8-10 years after RT

MRI

- Does not replace mammography
- Specificity 37-97 %
- Affected by menstrual cycle
- False positive as high as 30%
- Can lead to more aggressive treatment by detecting clinically insignificant synchronous lesions.

CLINICAL PRESENTATION AND WORK UP

RADIOGRAPHIC

PALPABLE

SECONDARY SIGNS OR SYMPTOMS

Compare different parameters in fine-needle aspiration cytology and core needle biopsy in studies that have compared both these diagnostic modalities

Initial biopsy

Atypical Ductal Hyperplasia

- <20 % progress to malignancy if untreated
- Risk not limited to ipsilateral breast
- Constitute 3 % of benign breast biopsies
- Defined pathologically as less than 2 mm or only partially involved duct
- 20% upgraded on excision
- Observation an option
- Endocrine prevention an option

LCIS

- Tis
- 5.3% of insitu lesions
- Increased risk bilaterally
- Rarely upgraded (1-5%)
- Lumpectomy alone vs observation
- RT not recommended
- Endocrine therapy controversial

DCIS

- Tis
- 20% of all newly diagnosed “breast cancers”
- Excision alone-26-36% local recurrence in 13-20 year f/u
- RT reduces local recurrence by 50% but no change in mortality rate (3%)
- Endocrine therapy reduces local recurrence by 30% no change in mortality rate
- Consideration of oncotype scoring

Prophylactic Endocrine therapy

- Tamoxifen

- 30 % reduction in incidence
- No improvement in survival
- DVT risk
- Uterine cancer risk
- Raloxifene-no uterine cancer risk

- Aromatase inhibitors

- 50% decrease in incidence
- No improvement in survival
- Osteoporosis risk

INVASIVE BREAST CANCER

NEOADJUVANT CHEMOTHERAPY

- Large tumors and tumors out of proportion to breast size in patients desiring breast conservation
- Inflammatory, although not considered early stage independent of nodal status
- Multiple + LN
- Stage >= III
- Locally advanced (also not considered early stage)
- Her 2 neu + tumors > 2 cm

Indications for mastectomy

- Multiple tumors in different quadrants
- Tumor size out of proportion to breast size
- Inflammatory breast cancer
- Contraindication to RT
- Patient choice

SURGICAL TECHNIQUES

LUMPECTOMY

Mastectomy incisions

Nipple sparing mastectomy incision

BRAC patient treatment options

- Marked increase in risk to contralateral breast
- Increased risk second primary in ipsilateral breast
- Bilateral mastectomy shown to reduce mortality by 50%
- Oophrectomy strongly recommended

staging of breast cancer

ONCOTYPE

- Typically ordered for ER+ her 2 neu neg LN neg tumors.
- Recent Taylor X study validated use in 1-3 + LN patients
- More often decreases the need for chemotherapy in low and intermediate risk groups

Oncotype for invasive breast cancer

Oncotype for early stage breast cancer

ADJUVANT THERAPY

Radiation therapy

- Lowers local recurrence rates to approx 5 %
- Related to margin status-usually “no ink” for invasive and 1 mm for insitu
- Related to stage and prognostic indicators (ER and her 2 neu)
- PBI equivalent to WBI

TAMOXIFEN

- premenopausal only
- Nonsteroidal
- Inhibits binding of estradiol to estrogen receptors
- Inhibits tumor cell growth
- May not be quite as effective in ER + but PR – tumors
- 50% reduction

Aromatase inhibitors

- Interferes with the production of of estrogens from androgens
- Limited ability to reduce circulating estrogen (hence not in used premenopausal women)
- Risk reduction 40-50%
- Contralateral risk reduction

Breast Cancer Recurrence Rates by Stage

Survival rates for Breast Cancer

Stage at Diagnosis	Nodes Involved	Cumulative Risk
T1	0	13%
	1 - 3	20%
	4 - 9	34%
T2	0	19%
	1 - 3	26%
	4 - 9	41%

SURVEILLANCE

Advanced imaging for signs or symptoms (such as bone pain)

Advanced imaging for abnormal conventional studies (such as CXR)

Routine annual blood work: CBC CMP

Consider tumor markers: ca 15.3 29.27 CEA

Annual 3D mammograms

MRI's based on clinical

DEXA every 2 years for patients on AI

My own tips

- Reassurance
- Precancer terminology for insitu lesions
- True genetic risk
- More is not necessarily better
- Real risk based on current age, not lifetime risk