

MS-IV Mammography Lecture

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Statistics

- Estimated Breast cancer cases 2002:
180,000
- Estimated Breast cancer deaths 2002:
42,000
- 1 in 9 women will get Breast cancer
(lifetime risk)
- 1% of all Breast cancer occurs in males

Statistics

- 30% of all diagnosed cancers is Breast cancer
- 17% of total cancer deaths is from Breast cancer
- Breast cancer is the leading cause of death in 40-44yo women
- 30 million mammograms performed yearly; 66 million screens should be done

MAJOR RISK FACTORS

- Patient's age
- Personal history of breast cancer
- Family history - especially premenopausal
- Biopsy of atypia

MINOR RISK FACTORS

- Prolonged menstrual cycle
- Early menarche
- late menopause
- Nulliparous or over 35 at first pregnancy
- Estrogen use (controversial)
- Endometrial or pelvic cancer

MEANS OF DETECTION

- Monthly self-breast exams (controversial)
- Yearly breast exam by physician
- Screening mammography

BREAST IMAGING

- Film-Screen Mammography: Screening and Diagnostic
- Ultrasound
- Galactography
- MRI/CT
- Scintimammography / PET Scanning
- Digital Mammography

SCREENING MAMMOGRAPHY

- Study performed in asymptomatic women to detect breast cancer at an earlier stage to decrease breast cancer mortality

DIAGNOSTIC MAMMOGRAPHY

- Study performed in women with signs or symptoms of breast.
- It helps evaluate the clinical area of concern AND the remaining breast tissue for occult Breast cancer.

GALACTOGRAPHY

- Involves the retrograde injection of water soluble contrast in conjunction with mammography to evaluate nipple discharge.
- It cannot differentiate benign from malignant intraductal tumors.

SCINTIMAMMOGRAPHY

- 20mCi Tc-99m Sestamibi IV
- prone positioning to visualize more breast tissue
- SPECT has greater sensitivity than PLANAR scintimammography but lower specificity
- Early studies conclude this is a highly sensitive test that improves the specificity of controversial mammography

DIGITAL MAMMOGRAPHY ADVANTAGES

- Increased inherent contrast
- Post-processing to increase contrast with no increase to patient dose
- Images can be transmitted for interpretation at distant sites (TELERADIOLOGY) and more efficiently stored (OPTICAL DISCS)

BREAST US

- Focused study to evaluate mammographic abnormalities (cyst vs. solid masses)
- Initial study in work-up of a palpable mass in women under 30yo
- Used to evaluate palpable masses if Mammogram is normal

BREAST US

- Further characterizes mammographic masses
- Size measurement is more accurate than mammography
- Interventional procedures (aspirations, core biopsies, needle placements for excisional biopsies)

BREAST US

- Correlation between Mammogram and US important and sometimes difficult especially with multiple masses and small lesions $< 1\text{cm}$
- Make sure patient can locate the palpable abnormality

Standard Mammographic Views

- CC - Craniocaudad
- MLO - Mediolateral Oblique

Screening Mammography

- Every 1000 screens should yield 6 to 8 Breast cancers.
- 15-20% of these cancers should be DCIS (Ductal Carcinoma-in-Situ)

GOTHENBURG SWEDEN TRAIL 1982

- 24,000 women 40-49 years
- 11,000 for screening mammogram every 18months
- 13,000 control group
- After 10yrs, @40% reduction in Breast cancer mortality in the screened group

MALMO SWEDEN TRAIL

- 17,000 women 45-49 years
- entered 1978-1990
- screening mammogram interval of 18 - 24 months
- 31% reduction in Breast cancer mortality after 11 years

WORLD SCREENING TRAILS

- HIP NY showed 30% decrease in Breast cancer mortality in screened women >50yrs
- EDINBURGH showed 20% decrease in screened women >50yrs
- SEWDEN showed 35% decrease in screened women >50yrs
- CANADIAN study showed no decrease in Breast cancer mortality at any age

ACR SCREENING GUIDELINES

- Baseline Mammogram by age 40
- Mammogram every year beginning at age 40
- Clinical Breast exam every year beginning at age 40

Mammography Guidelines

- For women under the age of 50, start screening mammography 10 years earlier than the age of the family member diagnosed with Breast cancer

RADIATION RISK

- Young breast tissue is more sensitive to radiation
- Large doses are necessary to induce breast cancer

FDA DOSE LIMIT

- 300mRAD per view

THEORETICAL RISK

- A single mammogram at 300mrad exposure dose increases one's lifetime risk of getting Breast cancer
 - 25yo 2.3 in 100,000
 - 45yo 1 in 100,000
 - 65yo 1 in 100,000

BREAST BIOPSIES

- Excisional biopsy by needle guide
- Stereotactic core biopsy
- US guided core biopsy

WOMAN'S BREAST CANCER RISK

- 0-39 years 1 in 217
- 40-59 years 1 in 26
- 60-79 years 1 in 14

WOMAN'S RISK of DYING from BREAST CANCER

- 30yo 1 in 33
- 50yo 1 in 47
- 70yo 1 in 90

PERCEPTION VS REALITY

- 46% of women think they will get Breast cancer
- 4% of women will die from Breast cancer
- 4% of women think they will get heart disease
- 36% of women will die from heart disease