CARING FOR BREAST CANCER SURVIVORS

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Disclosure

• Consulting for Genomic Health
Learning Objectives

• Understand the unique medical and psychosocial needs of breast cancer survivors.

• Apply current practice guidelines for managing breast cancer survivors in the primary care setting.

• Understand the purpose of Breast Cancer Survivorship Programs.
CASE STUDY

49 year old obese female with PMH significant for HTN. She is s/p breast conserving surgery with axillary lymph node dissection, chemotherapy (anthracycline and taxane-containing) and whole breast radiation for T2N1M0 stage IIB L breast cancer. Her tumor was ER/PR +, her2 negative. She has chemotherapy induced amenorrhea and is currently taking Tamoxifen.
CASE STUDY

• What long-term risks does she face after breast cancer treatment?
  – Recurrence risk
  – Risk of new primary cancers
  – Risk of treatment-related toxicities

• To what follow-up schedule should she adhere? With which doctors should she follow-up?

• What type of imaging studies are appropriate for this patient?
Please complete the baseline knowledge assessment handed out at the entrance. Please pass it to the end of your row when complete.
CARING FOR BREAST CANCER SURVIVORS

• OUTLINE:
  – Definition of a “survivor”
  – Scope of the problem
  – Elements of survivorship care, survivorship care plans and models for providing survivorship care
  – Clinical issues in caring for breast cancer survivors
DEFINING “SURVIVOR”

DIFFERING DEFINITIONS

• Moment of diagnosis
• Completion of initial treatment
• Living 5 years beyond diagnosis
• Dying from a cause other than cancer

SCOPE OF THE PROBLEM

• Lifetime risk of breast cancer 12.3% (1 in 8 women)
  – Most common cancer in women
• 230, 480 estimated new female breast cancer cases in 2011
• 39,520 estimated deaths due to breast cancer in women in 2011
• As of January 1, 2012, there were 2,971,610 women alive with a history of breast cancer

# Stage Distribution and Survival Rate by Stage at Diagnosis (2001-2007)

<table>
<thead>
<tr>
<th>Stage at Diagnosis</th>
<th>Stage Distribution (%)</th>
<th>5-year Relative Survival (%)</th>
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<tbody>
<tr>
<td>Localized</td>
<td>60%</td>
<td>98.6%</td>
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<tr>
<td>Regional</td>
<td>33%</td>
<td>83.8%</td>
</tr>
<tr>
<td>Distant</td>
<td>5%</td>
<td>23.3%</td>
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<tr>
<td>Unknown</td>
<td>2%</td>
<td>52.4%</td>
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Downloaded January 13, 2012
INSTITUTE OF MEDICINE (IOM) & CANCER SURVIVORSHIP

• IOM established committee to examine medical and psychosocial issues faced by cancer survivors
• Recommendations made to improve survivors’ health care and quality of life
• Issued report in 2006 focusing on survivors of adult cancer during the phase of care that follows primary treatment: *From Cancer Patient to Cancer Survivor: Lost in Transition*

INSTITUTE OF MEDICINE REPORT: “LOST IN TRANSITION”

4 ELEMENTS OF SURVIVORSHIP CARE

1) **Prevention** of recurrent and new cancers, and of late effects of treatment

2) **Surveillance** for cancer metastasis, recurrence, or second cancers; assessment of medical & psychosocial late effects

3) **Intervention** for consequences of cancer and its treatment

4) **Coordination** between specialists and primary care providers to ensure that all of the survivor’s health needs are met.

SURVIVORSHIP CARE PLANS

IOM Recommendation:

“Patients completing primary treatment should be provided with a comprehensive care summary and follow-up plan that is clearly and effectively explained. This “Survivorship Care Plan” should be written by the principal provider(s) who coordinated oncology treatment. This service should be reimbursed by third-party payors of health care.”

IOM RECOMMENDATIONS: COMPONENTS OF A BREAST CANCER SURVIVORSHIP CARE PLAN

• Names and phone numbers of oncology care providers
• Family history of cancer; genetic testing results (if applicable)
• Pathology of tumor; staging
• Type of treatment received: surgery, radiation, chemotherapy (associated toxicities, dose received), endocrine therapy
• Potential late / long-term effects of treatments received
• Follow-up care schedule for first 5 years after treatment: oncology visits, mammograms, DEXA scans
• Recommendations for cancer screenings: colonoscopy, pap smear
• Health maintenance recommendations: diet, exercise, bone health, eye health, skin health, mental health / well-being
• Signs / Symptoms of recurrence, metastasis or new primary cancer
• Psychosocial resources

PROVIDING SURVIVORSHIP CARE: SHARED CARE

• Coordinated effort between health care providers
• Primary responsibility for patient care transitions from oncologist back to primary care provider at a certain point in patient’s cancer care
• Ongoing exchange of information between providers with oncologist available for consults
• Survivorship Care Plans may help facilitate this transfer of care between providers

CLINICAL ISSUES IN CARING FOR BREAST CANCER SURVIVORS

• Key components:
  – Surveillance for disease recurrence or new primary breast cancers
  – Management of late / long-term effects of local therapy and systemic therapy
  – Screening for other malignancies
  – Lifestyle modification
  – Psychosocial support
  – Patient education
SUGGESTED FOLLOW-UP FOR BREAST CANCER SURVIVORS

• American Society of Clinical Oncology (ASCO) 2006 Guidelines:
  – H&P every 3-6 mo for yrs 1-3 post-treatment, then every 6-12 mo for yrs 4-5 post-treatment
• National Comprehensive Cancer Network (NCCN) 2012 Guidelines:
  – H&P every 4-6 mo for 5 years post-treatment, then annually

BREAST CANCER SURVIVORS: BREAST CANCER RECURRENCE RISKS

- Risk of metastases from original tumor
- Risk of developing an in-breast recurrence after breast conserving treatment
- Risk of developing a new primary breast cancer (ipsilateral or contralateral)
  - Often difficult to distinguish in-breast recurrence from ipsilateral new primary breast cancer
RISK OF DISTANT METASTATIC DISEASE

- Risk of developing metastases and death due to breast cancer varies with time and according to characteristics of the tumor.
- Overall, the annual hazard rate for breast cancer death peaks 2-3 years after diagnosis.
- Risk of early recurrence and death greater for estrogen receptor negative tumors.
- Risk of later recurrence and death greater for estrogen receptor positive tumors.

Annual hazard rates for breast cancer death and ER-negative to ER-positive hazard ratios (Table 1) using the National Cancer Institute's Surveillance, Epidemiology, and End Results 13 Registries Databases (1992 to 2007) for invasive female breast cancer.

Jatoi I et al. JCO 2011;29:2301-2304
SURVEILLANCE FOR DISTANT METASTASES

- Metastatic disease often presents with symptoms between regularly scheduled visits.
- Common sites of metastases include bone, lung, liver, CNS.
- Routine labs, tumor markers and scans to detect metastases are not recommended.
  - Randomized trials demonstrate no survival benefit or quality of life benefit for early detection of distant metastases through intensive surveillance programs compared to standard clinical follow-up.

RISK OF IN-BREAST TUMOR RECURRENCE AND NEW PRIMARY BREAST CANCER IN BREAST CANCER SURVIVORS

• Risk of new primary breast cancers/in-breast tumor recurrences greater in women with a personal history of breast cancer than in general population

• In-breast tumor recurrence/new primary ipsilateral breast cancer:
  – 10 year risk after breast conserving therapy 7.7%
  – 25 year risk after breast conserving therapy approx 20%

• New primary contralateral breast cancer
  – 25 year risk approx 10-15% (yearly estimate 0.5-1%)


SURVEILLANCE FOR IN-BREAST RECURRENCE OR NEW PRIMARY BREAST CANCERS: BREAST IMAGING

• Mammograms:
  – ASCO Guidelines:
    • First post-treatment mammogram no earlier than 6 mo after radiation
    • Subsequent mammograms every 6-12 mo
    • Yearly mammograms if findings stable after completion of locoregional treatment

SURVEILLANCE FOR IN-BREAST RECURRENCE OR NEW PRIMARY BREAST CANCERS: BREAST IMAGING

• Breast MRI:
  – No evidence to suggest screening MRI improves outcomes in asymptomatic patients with a history of breast cancer
  – Majority of data supporting screening MRI based on populations with family history and/or deleterious genetic mutations
  – Insufficient data to recommend for or against MRI in women with a personal history of breast cancer

POST-MASTECTOMY SURVEILLANCE

• Incidence of locoregional recurrence after mastectomy low (2-10%) and constitutes metastatic disease.
  – Risk varies with age, stage, response to therapy and receipt of post-mastectomy radiation
• Insufficient evidence to either support or counter post-mastectomy surveillance imaging
• No specific guidelines address imaging for women who have undergone mastectomy and breast reconstruction

LATE / LONG-TERM EFFECTS OF LOCAL THERAPY

• Local therapies include:
  – Surgery:
    • Mastectomy or partial mastectomy
    • Axillary sentinel lymph node biopsy with or without axillary lymph node dissection
  – Radiation:
    • Whole breast irradiation (usually includes axillary lymph nodes)
    • Boost to tumor bed
    • Supraclavicular lymph nodes included in high risk patients
LATE LONG-TERM EFFECTS OF LOCAL THERAPY: COMPLICATIONS OF SURGERY

- Seroma formation
- Anatomic distortion
- Pain / numbness of breast, chest wall, or axilla
- Decreased mobility ipsilateral arm
- Lymphedema

LATE / LONG-TERM EFFECTS OF LOCAL THERAPY: LYMPHEDEMA

• Incidence
  – 10-40%

• Pathophysiology
  – Increased osmotic pressure due to functional overload of the lymphatic channels
  – Chronic low-grade inflammation causes fibrosis and disorganized collagen fibers, causing hardening of tissues and functional deficits
  – Incompetent lymphatic valves cause further stasis

• Symptoms:
  – Edema, feeling of heaviness, tightness or aching to the affected arm, axilla or ipsilateral chest wall

LATERT / LONG-TERM EFFECTS OF LOCAL THERAPY: LYMPHEDEMA RISK FACTORS

- Extent of axillary lymph node surgery
  - Risk much smaller with sentinel lymph node biopsy (approximately 5%) than axillary dissection
- Radiation therapy
- Obesity, weight gain after treatment
- Skin infection/injury
- Airline travel


LATE / LONG-TERM EFFECTS OF LOCAL THERAPY: LYMPHEDEMA

Treatment
- Physiatry consult
- Compression sleeves
- Pneumatic compression pump
- Massage
- Physical therapy/exercise

Prevention
- Avoid trauma to arm (including venipuncture, BP cuff, injections, IV medications)
- Treat infections, injuries promptly
- Good skin and nail care
- Avoid constricting sleeves or jewelry
- Wear compression sleeve for airplane travel and heavy exertional activity of the arm
- Avoid extreme heat or cold (including baths/hot tubs)

LATE LONG-TERM EFFECTS OF LOCAL THERAPY: COMPLICATIONS OF RADIATION

- Radiation pneumonitis
- Rib fracture
- Brachial plexopathy
- Fibrosis
- Cardiotoxicity
- Secondary malignancies
LATE / LONG-TERM EFFECTS OF LOCAL THERAPY: RADIATION PNEUMONITIS

- Inflammation of lung tissue due to irradiation.
- Acute (4-12 wks after treatment) or late (6-12 mo after treatment)
- Incidence depends on dose and field, but overall incidence is low (<5%)
- Risk factors:
  - Increasing lung volume in the tangent fields
  - Treatment to the supraclavicular, axillary, & internal mammary regions vs. breast only (4.1% vs. 0.9%)
- Management:
  - Steroids, pulmonary evaluation

LATE / LONG-TERM EFFECTS OF LOCAL THERAPY: RIB FRACTURE FOLLOWING RADIATION THERAPY

- Risk is low: < 3%

- Median time to develop rib fracture 1 year.

- Higher incidence with radiation doses exceeding 50 Gy (standard dose 50.4 Gy plus 10 Gy boost) and use of concomitant chemotherapy


LATE / LONG-TERM EFFECTS OF LOCAL THERAPY: BRACHIAL PLEXOPATHY

- Caused by radiation therapy and/or axillary surgery
- Shoulder, arm, hand can be affected
  - Neuropathic pain, paresthesias, weakness
- Risk low: 1% of women receiving < 50 Gy to the supraclavicular and axillary fields
  - Higher risk when > 50 Gy radiation dose delivered to axillary area, concurrent chemotherapy administration, and use of a third field
- Management:
  - Neurology
  - Physiatry

LATE / LONG-TERM EFFECTS OF LOCAL THERAPY: RADIATION-INDUCED BREAST FIBROSIS

- Skin retraction, induration, thickening, pain
- Challenging clinical breast exam
- Occurs in approximately 1/3 of patients treated with breast conserving surgery and radiation
- Occurs more frequently when treated with additional radiation fields and larger tumor size

LATE / LONG-TERM EFFECTS OF LOCAL THERAPY:
RADIATION-INDUCED CARDIOTOXICITY

• May not manifest for > 10 years after radiation
• May include pericardial disease, CAD, cardiomyopathy, CHF, valvular disease, conduction abnormalities
• Older radiation techniques definitely associated with cardiotoxicity
  – especially for L side and if internal mammary lymph nodes included in field
• Contemporary radiation techniques minimize radiation to the heart
  – Recent studies of associations between current radiotherapy techniques and risk of cardiotoxicity inconclusive

LATE / LONG-TERM EFFECTS OF LOCAL THERAPY: SECONDARY MALIGNANCIES AFTER BREAST IRRADIATION

• Non-breast malignancies (lung cancer, sarcoma, leukemia)
  – Excess risk of a secondary non-breast malignancy compared to women who do not receive radiation approx 1%

• Contralateral breast cancer
  – Controversial whether breast irradiation increases risk of contralateral breast cancer

LATE / LONG-TERM EFFECTS OF SYSTEMIC THERAPY

- Systemic therapies for early stage breast cancer include:
  - Chemotherapy
    - Anthracyclines
    - Cyclophosphamide
    - Taxanes
  - Her2 targeted therapy
    - Trastuzumab
  - Endocrine therapy
    - Tamoxifen (pre-menopausal or post-menopausal)
    - Aromatase inhibitors (AI) (post-menopausal)
LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY

- Fatigue/Cognitive dysfunction
- Neuropathy
- Cardiotoxicity
- Chemotherapy-induced amenorrhea, premature menopause
- Secondary malignancies
LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY: FATIGUE

“Cancer-related fatigue is a distressing persistent, subjective sense of physical, emotional and/or cognitive tiredness or exhaustion related to cancer or cancer treatment that is not proportional to recent activity and interferes with usual functioning” – NCCN Guidelines

- Incidence 26%-90%
- May persist for up to 10 years after treatment ends.
- Perceived as one of the most pervasive and debilitating symptoms of cancer
  - affects emotional & physical well-being, relationships, employment

LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY: FATIGUE

General Management of Fatigue
• Self-monitoring of fatigue
• Energy conservation

Non-pharmacologic Interventions
• Initiation of exercise program
• Consider referral to physiatry
• Psychotherapy (cognitive behavioral)
• Nutrition consultation
• Sleep hygiene

Pharmacologic Interventions
• Consider stimulants AFTER ruling out other causes of fatigue

LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY: COGNITIVE DYSFUNCTION

- Many breast cancer survivors report subjective sense of cognitive dysfunction (“chemo brain”)
- Difficult to separate cognitive dysfunction from anxiety, depression, fatigue, effects of hormonal changes
- Neuropsychological testing has not consistently revealed difference in cognitive function between breast cancer patients and healthy controls
  - However, one recent small study demonstrated cognitive impairment with associated white matter changes on MRI 3-5 mo after chemo
- No proven interventions for prevention or treatment

LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY: NEUROPATHY

• Associated with taxane use (paclitaxel, docetaxel)
• Peripheral sensory nerves most commonly affected
  – Neuropathic pain, paresthesias
  – Symptoms typically symmetrical
• Incidence is dose dependent
• More common in patients with pre-existing nerve damage (e.g. diabetes)
• May resolve or become chronic

LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY: MANAGEMENT OF NEUROPATHY

The Neuropathic Pain Special Interest Group of the International Association for the Study of Pain – Evidence Based Guidelines

- **1**\(^{st}\) Line Treatment (can be used alone or in combination)
  - Tricyclic anti-depressants
  - SSNRIIs
  - Gabapentin or pregabalin
  - Topical lidocaine
- Consider referral to physiatry or pain management specialist

LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY: CARDIOTOXICITY

**Anthracyclines** (doxorubicin or epirubicin)
- Damage myocardial cells by generating free radicals
- May take mo-yrs for symptoms to appear
- Risk dose dependent
- Incidence of CHF 5% for doxorubicin with cumulative dose of approx 400 mg/m2
- Risk factors: old age, hypertension, pre-existing CAD, previous mediastinal radiation therapy, concomitant trastuzumab, diabetes, black
- Avoid in patients with low LVEF at baseline

Congestive heart failure in patients treated with doxorubicin: Dose Response

LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY: CHEMOTHERAPY-INDUCED AMENORRHEA (CIA)

- Risk of CIA depends on age, type of chemotherapy, and total number of cycles of chemotherapy
- Menses may recur late, however most women who remain amenorrheic 1 year following treatment will not regain ovarian function.
- Women who resume menstruation after chemotherapy likely have reduced fertility and may experience menopause at an earlier age

Bleeding after chemotherapy by patient age

Petrek J A et al. JCO 2006;24:1045-1051
Bleeding after chemotherapy by type of regimen

Petrek J A et al. JCO 2006;24:1045-1051
LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY: CHEMOTHERAPY-INDUCED AMENORRHEA

- Amenorrhea ≠ Infertility
- Amenorrhea ≠ Menopause
  - Difficult to assess menopausal status in women with CIA
- Issues in managing premature menopause after chemotherapy:
  - vasomotor symptoms
  - vaginal dryness
  - loss of bone mineral density
  - cardiovascular health
- Issues resulting from chemotherapy-induced premature menopause may be exacerbated by hormonal therapy for breast cancer

LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY: CHEMOTHERAPY-INDUCED AMENORRHEA

- Vaginal atrophy
  - Minimal data available to guide management
  - Generally try to avoid hormonal therapy
    - Non-hormonal lubricants
    - Non-hormonal vaginal moisturizers
  - If necessary, consider local hormonal therapy with minimal systemic absorption after discussion of potential risks related to estrogen absorption
    - Estradiol vaginal ring

OBSTETRIC ISSUES IN BREAST CANCER SURVIVORS

• Fertility may be impaired even after recovery from CIA
• Data inconsistent regarding whether pregnancy outcomes inferior
• No difference in 5-year overall survival for women with stage I-II breast cancer who became pregnant after treatment
• Avoidance of pregnancy recommended for first few years after breast cancer treatment
  – Balance risk of cancer recurrence with pregnancy goals
• Avoidance of pregnancy required during tamoxifen
• Non-hormonal contraception required for breast cancer survivors
  – Copper IUD recommended
• Lactation may be impaired after breast irradiation (due to fibrosis)

LATE / LONG-TERM EFFECTS OF CHEMOTHERAPY AND ENDOCRINE THERAPY: MANAGEMENT OF VASOMOTOR SYMPTOMS

• Mild symptoms: behavioral modifications
• Severe symptoms:
  – Venlafaxine
  – Gabapentin
  – Clonidine
• Estrogen therapy is generally **contraindicated** in breast cancer survivors
• No evidence to support efficacy & long-term safety of phytoestrogens and black cohosh

RISK OF CHEMOTHERAPY-INDUCED MDS/AML IN BREAST CANCER SURVIVORS

• Alkylating agents and anthracyclines can cause myelodysplastic syndrome (MDS) & acute myeloid leukemia (AML)
  – Alkylating agents: 5-10 years after initial treatment
  – Anthracyclines: 1-5 years after initial treatment

• Risk of AML/MDS after anthracycline-containing breast cancer chemotherapy 0.3-1.2%

CARDIOTOXICITY OF TRASTUZUMAB

- Initial studies of trastuzumab + chemotherapy in metastatic setting revealed 9.2% risk of cardiac dysfunction (range 1-27%, highest with concurrent anthracyclines)
- Risk observed in adjuvant studies of trastuzumab lower (2-14%)
  - Risk lowest when trastuzumab given with non-anthracycline containing adjuvant chemotherapy (0.4%)
- **Often reversible**: Can treat CHF medically and rechallenge with trastuzumab

LATE/LONG TERM EFFECTS OF ENDOCRINE THERAPY

• Tamoxifen
  – Thromboembolism
  – Endometrial cancer
  – Drug interactions
  – Vasomotor symptoms

• Aromatase Inhibitors (AI)
  – Arthralgias
  – Loss of bone mineral density (BMD)
  – Vasomotor symptoms
LATE / LONG-TERM TOXICITY OF TAMOXIFEN: THROMBOEMBOLISM

• DVT/PE, stroke
  – Approximately 2-fold increased risk of DVT/PE
  • Risk primarily in women > 50 years
  – Small increased risk of stroke
  – Absolute risks of thromboembolic events < 1%
• Consider holding tamoxifen prior to elective surgery and resuming when patient ambulatory

LATE / LONG-TERM TOXICITY OF TAMOXIFEN: ENDOMETRIAL CANCER

- Tamoxifen has estrogenic effects on the endometrium
- Risk of endometrial cancer for women taking tamoxifen 2/1000 per year
- Usually early stage
- Abnormal bleeding should be promptly evaluated in women on tamoxifen
- Routine endometrial biopsy and US not recommended for women on Tamoxifen (high false positive rate of US)

EBCTCG Effects of chemotherapy and hormonal therapy for early breast cancer on recurrence and 15-year survival: an overview of the randomised trials. The Lancet 2005 365:1687-1717 → Endometrial Ca Risk 0.19% / year
TAMOXIFEN: DRUG INTERACTIONS

- Tamoxifen is a pro-drug

- Primary and secondary metabolism by the cytochrome P450 system generates more potent metabolites, such as endoxifen

- CYP2D6 is the rate limiting enzyme required for the generation of endoxifen

- Medications that inhibit CYP2D6 may reduce endoxifen concentrations and may reduce tamoxifen efficacy

TAMOXIFEN: DRUG INTERACTIONS

Commonly used anti-depressants which inhibit CYP2D6:

- Moderate-potent inhibitors
  - paroxetine
  - fluoxetine
  - bupropion
  - duloxetine

- Weak-moderate inhibitors
  - sertraline
  - citalopram
  - fluvoxamine

Alternatives to consider:

- venlafaxine
- desvenlafaxine
- reboxetine
- escitalopram
- mirtazapine

* Co-prescription of strong or intermediate CYP2D6 inhibitors with tamoxifen should be avoided if alternate drugs are available

LATE / LONG-TERM TOXICITY OF AROMATASE INHIBITORS: ARTHRALGIAS

- Reported rates approximately 5-40%
- Usually small joints
- Management:
  - Non-pharmacologic: weight-bearing exercise, stretching, joint mobility exercises, physical therapy, acupuncture / acupressure, transcutaneous electrical nerve stimulation, moist heat, massage
  - Pharmacologic: acetaminophen, NSAIDs, Cox2 inhibitors, tramadol, pain modifiers (nortriptyline, gabapentin, pregabalin)
  - Repleting Vitamin D, if deficient, may improve arthralgias
  - Consider changing from one aromatase inhibitor to another
  - Refer to rheumatologist if refractory

LATE / LONG-TERM TOXICITY OF AROMATASE INHIBITORS: LOSS OF BONE MINERAL DENSITY

- AIs cause loss of BMD
- Multiple AI trials demonstrate ↑ risk of fracture with AI therapy
  - 5-year fracture risk approx 7-10%
  - No reported cases of osteoporosis in patients with normal baseline BMD
  - Risk factors for AI-associated fracture: age, baseline osteoporosis, tobacco use, prior bone fracture, prior HRT

LATE / LONG-TERM TOXICITY OF AROMATASE INHIBITORS: LOSS OF BONE MINERAL DENSITY

• Concurrent initiation of zoledronic acid and AI reduces loss of BMD in comparison to later initiation of zoledronic acid
• Denosumab reduces loss of BMD with AI therapy
• No evidence for reduced risk of fracture for early administration of bisphosphonates or denosumab
• Bisphosphonates may also improve breast cancer outcomes
• Timing of initiation of bone-targeted therapy and choice of therapy controversial

A Proposed Algorithm for Initiation of Bisphosphonate Therapy During AI Therapy

Patient with breast cancer initiating or receiving AI therapy

- T-Score ≥ -2.0 No additional risk factors
  - Exercise, Calcium and vitamin D supplements
  - Monitor risk status and BMD

- Any 2 of the following risk factors:
  - T-score < -1.5
  - Age > 65 years
  - Low BMI (<20 kg/m²)
  - Family history of hip fracture
  - Personal history of fragility fracture after age 50
  - Oral corticosteroid use of > 6 months
  - Smoking (current and history of)
  - T-Score < -2.0
    - Bisphosphonates therapy, calcium and vitamin D supplements, exercise
    - Monitor BMD

SCREENING FOR NEW NON-BREAST CANCERS IN BREAST CANCER SURVIVORS

- 50-70% of new cancers are non-breast cancers
- Approximately 20% greater risk of new primary non-breast malignancies compared to general population
- No data to support enhanced screening for non-breast malignancies
- No data to support screening for radiation- and chemotherapy-induced malignancies
- Routine age-appropriate screening

LIFESTYLE MODIFICATIONS FOR BREAST CANCER SURVIVORS

• Women who are overweight after diagnosis and treatment face ↑ risk of breast cancer recurrence and death compared to women of normal weight

• Prospective observational data demonstrates exercise reduces breast cancer mortality (>25 observational studies)

• Women’s Healthy Eating and Living Study (randomized trial) demonstrated improved breast cancer survival with exercise and high vegetable-fruit intake

• Exercise decreases breast cancer-specific concerns (improved health related quality of life)

• More prospective randomized controlled trials assessing effect of lifestyle modifications on breast cancer outcomes are needed

PSYCHOSOCIAL ISSUES IN BREAST CANCER SURVIVORS

• Psychosocial problems common in breast cancer survivors, especially younger survivors

• Issues include:
  – Anxiety
  – Depression
  – Fear of recurrence
  – Altered body image
  – Relationship issues
  – Sexual dysfunction

• **Must inquire** about psychosocial concerns and offer counseling and/or pharmacologic intervention

CASE STUDY

• What long-term risks does she face after breast cancer treatment?
  – Recurrence risk
  – Risk of new primary cancers
  – Risk of treatment-related toxicities

• To what follow-up schedule should she adhere? With which doctors should she follow-up?

• What type of imaging studies are appropriate for this patient?
POST-TEST AND EVALUATION

Please complete the post-test and evaluation. Please pass it to the end of your row when complete.
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