Cancer Survivorship: After Treatment

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Presented by:

Christal Murray, MD
Hematology & Oncology
Scott & White UMC

(512) 509-5380
cemurray@swmail.sw.org
Disclosures

- No items / relationships to disclose
Agenda

- Why is this issue important?
- Data on PCP awareness of side effects
- Review major side effects of cancer treatment by system
  1. Cardiac
  2. Pulmonary
  3. Gastrointestinal
  4. Genitourinary
  5. Endocrine
  6. Neurological
  7. Psychological
  8. Fatigue
  9. Secondary cancers
Why is this issue important?

- 12 million cancer survivors in the U.S.\(^1\)
- More than half live more than 5 yrs\(^1\)
- Many cared for by PCPs, many reasons:
  - Move
  - More comfortable with PCP
  - Already seeing PCP for other medical problems
  - Change insurance
Cancer Survivors by Year

NCI Survey of PCPs
Which of the following adverse effects have you observed or seen reported most often with the use of Adriamycin?
Adriamycin

1. Don’t know
2. Peripheral neuropathy
3. Pulmonary fibrosis
4. Cardiac dysfunction
5. Premature menopause
6. Secondary malignancies
Which of the following adverse effects have you observed or seen reported most often with the use of...

Cytoxan
Cytoxan

1. Don’t know
2. Peripheral neuropathy
3. Pulmonary fibrosis
4. Cardiac dysfunction
5. Premature menopause
6. Secondary malignancies
Which of the following adverse effects have you observed or seen reported most often with the use of…

Taxol
Taxol

1. Don’t know
2. Peripheral neuropathy
3. Pulmonary fibrosis
4. Cardiac dysfunction
5. Premature menopause
6. Secondary malignancies
Which of the following adverse effects have you observed or seen reported most often with the use of…

Oxaliplatin
Oxaliplatin

1. Don’t know
2. Peripheral neuropathy
3. Pulmonary fibrosis
4. Cardiac dysfunction
5. Premature menopause
6. Secondary malignancies
Percentage of PCP’s aware of late effects of chemotherapy:

- Cardiac toxicity of Adriamycin: 50%
- Peripheral neuropathy of Paclitaxel: 30%
- Peripheral neuropathy of Oxaliplatin: 20%
- Premature Menopause of Cyclophosphamide: 15%
- Secondary cancers of Cytoxan: 10%
- Knew side effects of all chemotherapies: 5%
Cancer Survivors by Disease Type

- Due to the high number of Breast, Prostate, and Hematologic malignancy survivors, those survivors will be the focus of this discussion.

Figure 1: Estimated number of cancer survivors in the United States by disease site as of January 1, 2005 (N = 11.1 million). Data from Reference 3. Retrieved from: http://dccps.nci.nih.gov/ocs/prevalence/prevalence.html#survivor
Side Effects of Cancer Treatment by System

1. Cardiac
2. Pulmonary
3. Gastrointestinal
4. Genitourinary
5. Endocrine
6. Neurological
7. Psychological
8. Fatigue
9. Secondary cancers
Case Study

- 67 yo female presents to PCP complaints of weight gain
- 9 years ago diagnosed with DCIS left breast
- Lumpectomy, adjuvant radiation
- Notes she doesn’t get on her treadmill as she has chest pressure with exercise
- No other medical problems
Case Study continued

- She undergoes stress testing
- Resting Echocardiogram normal
- At peak HR, akinesia in LAD distribution
Cardiac Effects:
Coronary Artery Disease

- RADIATION
  - Left sided Breast cancer
  - Lymphomas
  - Older techniques
Cardiac Effects: 
Chemotherapy-induced heart failure

- **ANTHRACYCLINES** (dose dependant)
  - Uses
    - Breast cancer
    - Lymphomas
    - Acute Leukemias
    - Childhood cancers
  - Incidence
    - 5% for maximum recommended dose
    - Higher for pediatrics
  - Months to years after treatment
  - No recommended surveillance

- **TRAZTUZUMAB** (Herceptin)
  - Breast cancer
  - 7-30% alone or in combination
  - Surveillance guidelines during treatment

- **CYCLOPHOSPHAMIDE**
  - Uses:
    - Breast cancer
    - Lymphomas
    - Leukemias
    - Bone marrow transplant in high doses
  - Incidence:
    - 3-27% based on dosing
Pulmonary Effects: Various

- Chemotherapies which commonly cause side effects
  - Early:
    - Gemcitabine, Bleomycin, Exemestane, Methotrexate
  - Late:
    - Cyclophosphamide
      - <1%
      - Months to years later
      - Usually terminal

- Radiation pneumonitis / fibrosis
  - Early
  - Late
Case study

- 63 yo man with prior nasopharyngeal cancer
- Treated 2 years ago with radiation concurrent with chemotherapy followed by adjuvant chemotherapy
- Complete clinical response
- Primary complaint is xerostomia
Case Study continued

- Wakes up every 1-2 hours with dry mouth
- Drinks frequently throughout the night
- Resultant nocturia
- Sleeps 2-3 hours at a time with sleep aids
- Still tired during the day, difficult time motivating himself to exercise
Gastrointestinal Effects:
Xerostomia

- Result of head and neck cancer treatment
- QOL detriment
  - Frequent drinking
  - Nocturia
  - Decreased sleep
  - Dental caries
  - Dysphagia
  - Life-long

- Treatment: Non-pharmacological
  - Humidifier
  - Artificial saliva
  - Gustatory stimuli
  - Soft foods

- Treatment: Pharmacological
  - Pilocarpine
    - 50% patients benefit
    - Lifelong treatment
    - Treatment side effects
Case Study continued

- Patient trials pilocarpine
- Discontinues within a week due to profuse sweating
Gastrointestinal Effects:

Diarrhea

- Chronic in up to 50% colorectal cancer survivors\(^9\)
- Radiation to pelvis

**Cause**
- Radiation
- Surgery

**Treatment**
- Antidiarrheals
- Dietary changes
Genitourinary Effects:
Incontinence and Sexual Dysfunction

- Both men and women
- Colon cancer\(^{10}\)
  - Up to 70% survivors
  - Rectal > colon
  - Worse with radiation
- Prostate cancer
  - EBRT 40% \(^{11}\)
- Breast, GYN cancers
- Causes: Surgery, radiation, hormonal treatments
- Treatment
  - Testosterone replacement
  - Phosphodiesterase 5 inhibitors, 80% response rate\(^{12,13}\)
  - Lubricants or low dose vaginal estrogens
Endocrine Effects:
Premature ovarian failure

- Causes
  - Cyclophosphamide\textsuperscript{14}
    - Breast cancer and lymphomas
    - Age and dose dependent
    - 40-60%

- Symptoms
  - Hot flashes
  - Vaginal dryness
  - Premature coronary disease
  - Osteoporosis
  - Infertility

- Treatments
  - Venlafaxine, Gabapentin
  - Lubricants, moisturizers
Endocrine Effects: Hypothyroidism

- **Cause**
  - Radiation to the neck
  - Dose dependent
  - 25-50%^15

- Monitor with TSH every 6-12 months
Endocrine Effects: Infertility

- Chemotherapy and radiation

- Management
  - Sperm banking
  - Cryopreservation of embryos and oocytes
  - GnRH agonists investigational
Endocrine Effects: Osteoporosis

- **Cause**
  - Aromatase inhibitors
    - Annual incidence 11% vs. 7.7 with tamoxifen\textsuperscript{15}
    - Risk appears to dissipate after discontinuation of AI
  - Premature ovarian failure

- **Treatment**
  - Bisphosphonates
    - ZO-FAST\textsuperscript{16}
      - Immediate vs. delayed bisphosphonate
      - 15% in delayed required bisphosphonate
      - 5.2% difference in bone density at 36m
      - No difference in fracture
  - ASCO guidelines \textsuperscript{17}
    - Monitor yearly
    - Initiate when T score <-2.5
  - Calcium, vitamin D
  - Exercise
  - Smoking cessation
Neurological Effects:
Neuropathy

- Symptoms
  - Numbness
  - Pain
  - Loss of fine motor skills

- Causes
  - Taxanes (paclitaxel, docetaxel) 25-40%
  - Platinums (cisplatin, oxaliplatin) 50-80%, long-term 20%
  - No effective therapy
  - Gabapentin\(^{18}\)
  - Pregabalin
Neurological Effects:
Cognitive Decline; “Chemo Brain”

- New field of study

- Symptoms
  - Difficulty concentrating
  - Memory loss

- Incidence
  - Unclear
  - Conflicting data
  - Studies variable in methods

- Treatment
  - Manage depression
  - Manage sleep disturbances
  - Exercise
  - Memory aids
  - Coping strategies to lower stress
Neurological Effects:
Hearing Loss & Other

- Hearing loss
  - Cisplatin
    - 15-20% symptomatic
    - Dose dependent
    - Exacerbated by concomitant radiation
    - Worse in children
    - No known effective prevention

- Radiation myelitis
  - Rare
  - 12m after radiation involving spine
Psychological Effects: Depression

- Incidence: up to 40%
  - Long-term 1.5 X normal population

- Risk factors
  - Young age
  - Prior depression
  - Type of cancer
    - Head and neck
    - Breast
    - Lung
Psychological Effects: Anxiety

- Younger patients
- Shorter duration since treatment

Treatment
- Support group
- Psychotherapy
- Medications
Fatigue

- Up to 30%, years after cancer treatment\textsuperscript{21}
- May not be higher than the general population\textsuperscript{22, 23}
- Not dependent upon treatment received or time since treatment

Evaluate for:
- Anemia
- Hypothyroidism
- Sleep disturbances
- Pain
- Depression
- Medications

Treatment
- Treat underlying problem
- Stimulants
- Exercise/PT
- Psychotherapy
Case Study:

80yo woman – History of Stage 1 Breast Cancer

Diagnosed with Stage 1 Breast Cancer
1992

Treatment in California: Lumpectomy, radiation, tamoxifen

Moved to Texas; Seen by oncology & dismissed from clinic
2003

Fell; Bruising on her breast discovered
Saw PCP at age 80
2011
Case Study:
Case Study: Result

- PCP sent to Dermatology
- Biopsy performed
- Diagnosed with angiosarcoma
- Late effect of radiation
Secondary cancers

- Increased risk of second malignancies
  - 2-80X risk or 1% per year\textsuperscript{24, 25}

- Risk dependent upon
  - Chemotherapy received and dose
  - Radiation dose and location
  - Age at treatment

- Prognosis poorer matched controls

- Most common secondary malignancies
  - Leukemia/MDS
  - Sarcomas
  - Lung cancer
  - Bladder
  - Breast
  - Endometrial
  - Esophageal/gastric
Summary

- Increasing number of survivors
  - Changing demographics
  - Improved screening
  - Improved treatment

- Many cared for by Primary Care Physicians

- Need increased awareness of late effects experienced by cancer survivors
- Thank You -
References


