Management of Complications of Cancer Therapy: Chemotherapy and beyond...

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Case Study: Mr. Hurdley

- Mr. Hurdley is a 77 y/o man with recent diagnosis of colon cancer
  - s/p surgery
  - planned adjuvant therapy: FOLFOX

FOLFOX: infusional 5-fluorouracil, leucovorin, oxaliplatin
Case Study: Mr. Hurdley

- 77 y/o man with recent diagnosis of colon cancer
  - s/p surgery
  - planned adjuvant therapy: FOLFOX
- Social history:
  - lives with wife and father-in-law
  - retired manager in local factory
- PMH:
  - hypertension
  - COPD
  - diabetes
  - prostate cancer – q 3 month goserelin
Case Study: Mr. Hurdley

- 77 y/o man with recent diagnosis of colon cancer
  - s/p surgery
  - planned adjuvant therapy: FOLFOX

- Mr. Hurdley identifies the following as concerns:
  - management of surgery-related issues
  - toxicities of chemotherapy
  - caregiver responsibilities for father-in-law
  - financial resources
  - social support for care
Strategies for the Management of Cancer

- Pharmacotherapy
- Radiation
- Surgery
- Combination therapy
  - drug therapy + radiation therapy
  - chemotherapy → surgery
  - surgery → chemotherapy
- No treatment
Drug Therapy for Cancer Treatment

- chemotherapy $\Rightarrow$ cancer cell
  - example: capecitabine
- hormonal / endocrine therapy
  - example: biclutamide
- immunotherapy / biotherapy
  - example: interferon
- targeted therapy
  - example: sunitinib
- cell differentiation agents
  - example: retinoid
- anti-angiogenesis agents
  - example: bevacizumab
Drug Therapy in the Individual with Cancer

“Management” of pharmacotherapy in the adult with cancer:
- cancer therapy(s)
- co-morbidities
- disease-related toxicity
- treatment-related toxicity
“Management” of pharmacotherapy in the adult with cancer:

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Management of Complications of Cancer Therapy: Treatment-Related Nausea and Vomiting
Chemotherapy - Induced Nausea and Vomiting

Published Guidelines:

- American Society of Clinical Oncology (ASCO)
- National Comprehensive Cancer Network (NCCN)
- Multinational Association for Supportive Care in Cancer (MASCC)
Etiology of Nausea and Vomiting in Individual with Cancer

Treatment Related:
- Chemotherapy
  - acute
  - delayed
  - anticipatory
  - breakthrough N/V
  - refractory N/V
- Radiation therapy
- Post operative
- Pharmacotherapy

Other:
- Mucositis
- Medications
  - opiates
  - anti-infectives
- Gastroparesis
- Infection
- Hyperacidity
- Anorexia
- Diarrhea
- Pain
Chemotherapy – Related Nausea and Vomiting

Day

Acute

Delayed

Overall

Hours

0
24
120

Administration of Chemotherapy
Chemotherapy –Induced Nausea / Vomiting: Classification

- Anticipatory
- early acute
- late acute
- delayed ....

Chemo
Chemotherapy – Induced Nausea / Vomiting: Classification

- acute
- delayed
- anticipatory
- breakthrough N/V
- refractory N/V
Chemotherapy Induced Nausea / Vomiting

- GI
- CTZ
- Dopamine
- Dopamine antagonists
- Cortical

Emetic Center

Nausea / Vomiting
Chemotherapy Induced Nausea / Vomiting

- CTZ
- GI
- Cortical
- serotonin antagonists
- Emetic Center
- Nausea / Vomiting
Chemotherapy Induced Nausea / Vomiting

GI

CTZ

Emetic Center

Cortical

benzodiazapines

Nausea / Vomiting
Chemotherapy Induced Nausea / Vomiting

GI

CTZ

vestibular

anticholinergics

Cortical

Emetic Center

Nausea / Vomiting
Chemotherapy Induced Nausea / Vomiting

- CTZ
- vestibular
- GI
- Substance P
- NK1 antagonist
- Cortical
- Emetic Center

Nausea / Vomiting
Treatment Options for Management of Nausea and Vomiting

- Serotonin (5-HT₃) receptor antagonists
  - 1ˢᵗ generation: ondasetron, granisetron, dolasetron
  - 2ⁿᵈ generation: palonosetron
    Botrel TEA, et al. Support Care Cancer 2010
- Dopamine receptor antagonists (e.g. prochlorperazine)
- Corticosteroids (e.g. dexamethsone)
- Benzodiazepines (e.g. lorazepam)
- Cannabinoids (e.g. dronabinol)
- NK₁ receptor antagonists (e.g. aprepitant)
Prevention and Management of CINV 2010

**Acute nausea/vomiting** ⇒ based on agent + regimen + individual

**Prevention:**
- Serotonin (5HT3) antagonist (po or iv) + steroid
  ± NK1 antagonist (aprepitant)
  ± benzodiazepine

**Management of breakthrough episodes:**
- dopamine antagonist

**Delayed nausea/vomiting**

**Prevention:**
- dopamine antagonist = steroid = 5HT3 antagonist
  ± role of NK1 antagonist
  ± serotonin antagonist

**Anticipatory nausea/vomiting:**

**Prevention:**
- behavioral therapy
- benzodiazepines
- prevention of acute and delayed CINV
Chemotherapy - Induced Nausea and Vomiting: Olanzapine

Rationale:
- Blocks multiple neurotransmitters including dopamine, serotonin, catecholamines, acetylcholine, histamine
- Case reports in management nausea

Evidence:
- Multiple phase II studies with serotonin antagonist and dexamethasone
Non-Pharmacologic Approaches for Chemotherapy-Induced Nausea and Vomiting

- acupuncture
- acupressure
- massage therapy
- herbs
- yoga
- comprehensive coping strategy program
- music therapy
- behavioral interventions
  - muscle relaxation training
  - systematic desensitization

Case Study: CINV

The individual who presents to clinic:
- Ms Porter is a 60 y/o female with recurrent breast cancer
  - metastatic to bone and liver
  - history of severe nausea and vomiting with chemotherapy
  - s/p adjuvant therapy: doxorubicin, cyclophosphamide, docetaxel, trastuzumab

- Comorbidities include:
  - hypertension → amlodipine, metoprolol, hydrochlorothiazide
  - depression → citalopram
  - anxiety → alprazolam
  - chronic nausea → ondansetron daily, lorezapam prn
  - osteoarthritis → ibuprofen, oxycodone

- Planned therapy: capecitabine and lapatinib
Case Study: CINV

- Ms Porter is a 60 y/o female with recurrent breast cancer
- Social history:
  - married and is the daytime caregiver for her grandchildren (ages 3, 6 and 10)
  - husband who is a short order cook for a local restaurant
  - concerned about the cost of medications
Case Study: CINV

Ms Porter is a 60 y/o female with recurrent breast cancer

CINV history:

• The patient’s husband recalls:
  - retching, vomiting and nausea x 3 days after each course
  - nausea limiting activities and eating x 1 week after each course
  - primary care physician began her on lorazepam for nausea with good success
• Antiemetics per patient medical records:
  - granisetron 1 mg IV prior to chemotherapy for each cycle
  - no dexamethasone based on concern with hypertension
  - no record of medications patient was given for outpatient use
Case Study: CINV

- Ms Porter is a 60 y/o female with recurrent breast cancer
- Current status of comorbidities:
  - hypertension → BP: 168/100  HR: 80
  - depression → increased sadness with recurrence
  - anxiety → very tense and apprehensive
  - chronic nausea → has not been able to afford her medications this month and has not taken ondansetron x 3 weeks
  - osteoarthritis → increase bone pain therefore increase use of ibuprofen as she has not been able to afford oxycodone
Case Study: CINV

- Ms Porter is a 60 y/o female with recurrent breast cancer
- Prevention and management of CINV:
  - prevention of CINV should be available for the course of her capecitabine
  - role of hypertension → BP: 168/100  HR: 80
  - depression → increased sadness with recurrence
  - anxiety → very tense and apprehensive
  - chronic nausea → has not been able to afford her medications this month and has not taken ondansetron x 3 weeks
  - osteoarthritis → increase bone pain therefore increase use of ibuprofen as she has not been able to afford oxycodone
When developing an antiemetic regimen for Ms. Porter, which of the following do you consider to be the most important?

a. impact of medication on hypertension
b. cost of antiemetic
c. side effect profile of antiemetic
d. history of effectiveness of antiemetics for control of CINV for Ms. Porter
Management of Complications of Cancer Therapy: Cancer Treatment Hematologic Toxicities and Potential Complications
Chemotherapy: Hematologic Toxicity

- Decrease in the production of blood cells
  - bone marrow suppression (BMS)
  - bone marrow depression (BMD)
  - myelosuppression

- Inhibition of the function of blood cells
Hematopoeisis: Production of Blood

Pleuripotent stem cells
- stems cells are few in number and divide slowly
- damage to stem cells cause decrease in production of all blood cells

Myeloid stem cell:
- erythrocytes
- granulocytes (eosinophils, basophils, neutrophils)
- monocytes
- platelets

Lymphoid stem cell:
- lymphocytes (T lymphocytes, B lymphocytes)
Chemotherapy: Hematologic Toxicity

Bone Marrow Depression may include:

- leukopenia - decrease in white blood cells
- neutropenia - decrease in the neutrophils subset of the white blood cells
- lymphopenia - decrease in lymphocytes subset of the white blood cells
- anemia - decrease in red blood cells
- thrombocytopenia - decrease in platelets
Chemotherapy-Induced Neutropenia (CIN)

Neutropenia:
- reduction in the number of circulating neutrophils
- CIN reduction in the number of circulating neutrophils caused by the administration of myelotoxic chemotherapy
- graded on a scale of 0 to 4
- neutropenia is commonly defined based on an absolute neutrophil count (ANC) < 500 or 1000
- Calculation of an ANC:
  \[ \text{ANC} = (\text{WBC}) \times (\% \text{ neutrophils} + \% \text{ bands}) \]
Audience Response Question

Mr. Williams is a 32 year old male with recently diagnosed acute myelogenous leukemia receiving chemotherapy. The following are the laboratory results from this morning:

- WBC  $0.5 \times 10^3/mm^3$ (500 / mm$^3$)
- Neutrophils 5%
- Bands 0%
- Lymphocytes 90%
- Monocytes 5%
- Blasts 0%

What is his absolute neutrophil count (ANC)?

a. 250
b. 25
c. 500
d. not enough information to determine
Chemotherapy - Induced Neutropenia: Potential Consequences

- Increase risk of infection
  - ↑ infection complication(s)
  - ↑ hospitalization
  - ↑ health care expenditures
- Modification of chemotherapy
  - dose reductions
  - chemotherapy delay
Chemotherapy - Induced Neutropenia Prevention Strategies

Neutropenia:
• colony stimulating factors (CSF)
• dose modifications
  - dose reduction
  - dose delay

Infection:
• lifestyle modification
• antibiotics / antiinfectives
• colony stimulating factors
Chemotherapy - Induced Neutropenia Management Strategies

Neutropenia:
- colony stimulating factors (CSF)
- dose modifications
  - dose reduction
  - dose delay
- management of complications

Infection:
- antibiotics / antiinfectives
  - prophylactic
  - empiric
  - treatment
- colony stimulating factors
White Blood Cell Growth Factors

- colony stimulating factors (CSF) / hematopoietic growth factors
- proteins that stimulate the growth of white blood cells
- G-CSF and GM-CSF have been given after chemotherapy to accelerate neutrophil recovery and reduce infectious mortality
- commonly used after chemotherapy for certain malignancy to decrease risks of prolonged neutropenia
- Associated with:
  - ↓ duration of neutropenia
  - ↓ risks associated with neutropenia
  - allows subsequent courses of chemotherapy to be given on time
White Blood Cell Growth Factors

- Prevention of neutropenia with initial cycle of treatment
  - risk of neutropenia associated with regimen (>20%)
  - treatment intent (curative vs palliation)
  - infectious risk of patient (e.g. wound)
- Prevention of neutropenia with second (+) cycle of treatment
  - history of chemotherapy-induced neutropenia
  - infectious risk of patient
- Management of neutropenia
  - evaluate use of prophylactic pegfilgrastim
  - risk of infection-associated complication
Risk Factors for Infection-Associated Complication

Individual Risk Factors:
• older adults
• comorbidities
• neutropenia
  - prolonged duration
  - low absolute neutrophil count
• infection
  - pneumonia
  - sepsis (sepsis syndrome)
Mr. Leigh is a 73 y/o male with metastatic pancreatic cancer; he is receiving chemotherapy with gemcitabine weekly x 3 every four weeks. He was treated 4 days ago.

He has been feeling lethargic and tired for two days, has a temperature and contacted his oncologist early this am.

Instructed him to go to the nearest emergency room for evaluation where he was found to be febrile (39°C) and hypotensive. His ANC is 250.
Audience Response Question

- Mr. Leigh is a 73 y/o male with metastatic pancreatic cancer; he is receiving chemotherapy with gemcitabine weekly x 3 every four weeks. He was treated 4 days ago.
- He presents to the emergency room and is found to be hypotensive, febrile and neutropenic.
- Which of the following is true:
  a. Mr. Leigh should not receive CSF; he not receiving curative intent treatment.
  b. Mr. Leigh should not receive CSF; he has already received chemotherapy.
  c. Mr. Leigh should receive CSF only if he has not received pegfilgrastim after his gemcitabine.
  d. Mr. Leigh should receive CSF only if he has received pegfilgratim after his gemcitabine.
Chemotherapy - Induced Thrombocytopenia

- deficient number of circulating platelets
- defined as platelet count < 100,000/mm³
- potential consequences ⇒ increase bleeding
  - platelet count ≤ 50,000 /mm³ associated with bleeding with minor trauma
  - platelet count < 15,000 /mm³ associated with severe and spontaneous bleeding
Thrombocytopenia: Patient Considerations

Patients Counseling:
- reduce activities that may cause trauma
- caution about common areas for bleeding
  - mouth and gum bleed
  - gastrointestinal tract
  - hemorrhoids
- avoid medications that may increase risk of bleeding
- notify health care team if bleeding occurs

Pharmacy Evaluation:
- avoid certain routes of administration (e.g. IM)
- concerns with certain medications
  - anticoagulant (e.g. warfarin)
Chemotherapy - Induced Anemia

- Decrease in red blood cell mass
- Many possible causes of anemia in patients with cancer
  - chemotherapy
  - bleeding secondary to thrombocytopenia
  - decrease nutrition
- Anemia $\Rightarrow$ decrease in oxygenation of tissues
  - shortness of breath
  - fatigue
  - effects on heart (e.g. increase heart rate)
  - changes in mental status
Chemotherapy: Consequences and Toxicities

Hematologic Toxicity

- Factors that influence the degree of myelosuppression:
  - previous chemotherapy
  - previous radiation
  - bone marrow involvement of the cancer
  - patient's age
  - patient's current and past nutritional status

- dysfunction of cells of the bone marrow
  - decrease lymphocyte function
Case Study

- Ms Lewis is a 62 y/o woman recently diagnosed with lymphoma, who has just received her first course of therapy with R-CHOP.

- Social history:
  - retired grade school teacher
  - lives with husband
  - three married children (2 local)

- Comorbidities:
  - A fibrillation → warfarin (target INR 2-3)
  - hypertension → metoprolol
  - diabetes → diet
  - anxiety (associated with diagnosis) → lorazepam prn

R-CHOP: rituximab, cyclophosphamide, doxorubicin, vincristine, prednisone
Ms. Lewis is a 62 y/o woman recently diagnosed with lymphoma, who has just received her first course of therapy with R-CHOP.

Social history:
- Retired grade school teacher
- Lives with husband
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Comorbidities:
- A fib → warfarin (target INR 2-3)
- Hypertension → metoprolol
- Diabetes → diet
- Anxiety (associated with diagnosis) → lorazepam prn

What is the impact of bone marrow suppression?

R-CHOP: rituximab, cyclophosphamide, doxorubicin, vincristine, prednisone
Audience Response Question

Which of the following is a potential consequence of chemotherapy-induced bone marrow suppression for Ms. Lewis?

a. increase risk of bleeding with warfarin if she experiences thrombocytopenia
b. increase risk of infection if she experiences neutropenia
c. chemotherapy delay if she experiences neutropenia
d. all of the above are potential consequences
Case Study

- PL is a 62 y/o woman recently diagnosed with lymphoma, who has just received her first course of therapy with R-CHOP.
- One week after treatment PL notices redness at her catheter site; and she applies antibiotic ointment to the site.

R-CHOP: rituximab, cyclophosphamide, doxorubicin, vincristine, prednisone
Audience Response Question

What is the most appropriate management of Ms. Lewis’s symptoms?

a. remove catheter
b. obtain culture from catheter site to determine if antibiotics are required
c. initiate broad spectrum antibiotics for potential infections
d. further evaluation of Ms. Lewis
Cancer Therapy Complications
Dermatologic Toxicities
Cancer Treatment Complications: Dermatologic Toxicities

Chemotherapy – Induced Dermatologic Toxicities:
- alopecia
- photosensitivity
- mucositis / stomatitis
- palmar-plantar erythrodysesthesia syndrome

Tyrosine Kinase Inhibitors:
- rash
- paronychia
- palmar-plantar erythrodysesthesia syndrome
- xerosis
- alopecia
Chemotherapy Related Toxicities

Dermatologic Toxicities

- palmar-plantar erythrodysesthesi
- chemotherapy-induced acral erythema
- severe syndrome requires dose modification
Cancer Treatment Complications: Dermatologic Toxicities

Epidermal Growth Factor Receptor Inhibitor (EGFRI):

- target signaling pathways that interfere with cellular growth, proliferation and survival
- cutaneous toxicities are common
- areas affected include:
  - skin
  - nails and nail beds
  - hair
EGFRI Toxicities: Rash

- **Description:**
  - pruritic, follicular, papulopustular, erythematous lesions
  - develops within first 3 weeks of treatment
  - severity of rash may fluctuate
  - resolution occurs within one month of discontinuation of therapy
  - does not share clinical or histiologic features of acne vulgaris

- **Distribution:**
  - face
  - shoulder, chest, trunk
  - lower back, abdomen, limbs (less common)
# EGFR Toxicities: Rash Management Strategies

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topical cyclosporin, steroids, select antibiotics</td>
<td>Anti-inflammatory activity</td>
</tr>
<tr>
<td>Lactic acid, salicylic acid, urea</td>
<td>crusting</td>
</tr>
<tr>
<td>Emollients, ointments</td>
<td>Hydration of skin to enhance barrier function</td>
</tr>
<tr>
<td>antihistamines</td>
<td>Management of itching</td>
</tr>
<tr>
<td>Cool compresses</td>
<td>Management of itching</td>
</tr>
<tr>
<td>Avoid acne medications</td>
<td>Acne medications may increase inflammation</td>
</tr>
<tr>
<td>Avoid alcohol-based gels, lotions</td>
<td>Alcohol may irritate skin</td>
</tr>
<tr>
<td>Avoid UV radiation</td>
<td>UV radiation may increase severity of rash</td>
</tr>
</tbody>
</table>

Lirusso P. Oncology 2009;23:186
EGFR Inhibitors: Dermatologic effects Paronychia and Periungual Inflammation

- **Description:**
  - inflammation of the nail fold
  - painful fissuring
  - brittle nails
  - late onset → 1 to 2 months post initiation of therapy

- **Management:**
  - antiseptic and antibiotic soaks or gels
Cancer Therapy: Symptoms Cluster
Chemotherapy: Consequences and Toxicities
Gastrointestinal Toxicities

- nausea and vomiting
- diarrhea
- mucositis / stomatitis
  - anorexia
- taste alterations
- pancreatitis
- constipation
Cancer Treatment Complications: Anorexia

- Anorexia and involuntary weight loss: anorexia/cachexia syndrome (ACS)
- Anorexia part of a symptom complex that includes:
  - gastrointestinal symptoms
  - taste changes
  - smell changes
  - altered circadian eating patterns
  - food aversions
Cancer Treatment Complications
Anorexia

- Survey of individual with cancer that reported anorexia as a problem (n=101)
- Results:
  - anorexia was not absolute
  - cachectic appearance was not typical
  - early satiety was common
  - taste changes was common (↑ older adults)
  - food aversions was common

Yavuzsen T, et al. Support Care Cancer 2009;17:1531
Mr. Keith is a 23 year old gentleman receiving chemotherapy for the treatment of Hodgkin’s Disease. He is about 5’8”, and currently weighs 245 lbs. His mother is concerned that he has lost 10 lbs in the last month since starting chemotherapy.

Which of the following is correct?

a. Mr. Keith’s weight is adequate, no intervention is warranted at this time.
b. Mr. Keith should be started on dietary supplements.
c. Mr. Keith should be given a multivitamin.
d. Mr. Keith should be asked about changes in tastes of food since starting chemotherapy.
Cancer Treatment Complications: Fatigue

- Persistent feelings of exhaustion, weariness, malaise, ↓ motivation, ↓ energy and inability to concentrate

- Severity of fatigue in cancer survivors related to:
  - insomnia
  - anxiety
  - depression
  - quality of life
  - impact on physical functioning

Kenefick AL. Oncol Nurs Forum 2006;33:327-335
Cancer Treatment Complications: Fatigue

Assessment of fatigue in individuals with cancer:

- model developed from analysis of demographic, clinical and patient reported outcomes in cancer patients undergoing treatment in large community oncology setting (N = 11,445 individuals with cancer)

- Results:
  - fatigue was best represented as a latent variable
  - indirect effects for trouble sleeping, depressed mood and pain
  - depressed mood increased fatigue
  - trouble sleeping led to increase ratings of pain

Cancer Treatment Complication: Fatigue

- Systematic relationship between sleep and other symptoms such as depression, pain and fatigue.

Role of the pharmacist:
- Identification of symptoms → evaluation of primary and contributing symptoms.
- Interventions targeting one symptoms may improve “downstream symptoms”.

Cancer Therapy Complications: Sleep Disorders

- General sleep disruption is common among individuals receiving chemotherapy.
- Insomnia is three times higher in individual with cancer than general population.
- Insomnia may begin before cancer treatment and continue for years post treatment.
- Prevalence of sleep disturbances vary among studies:
Cancer Therapy Complications: Insomnia

• **Insomnia:**
  - difficulty falling asleep
  - difficulty staying asleep
  - early awakening
  - non-restorative sleep
  - general sleep disruption is common among individuals receiving chemotherapy.

• **Insomnia diagnosis**
  - sleep disturbances that occur 3+ times/week
  - causes significant distress
  - impairment of daytime functioning

*American Psychiatric Association: DMS 4th ed, 2000*
Cancer Treatment Complication: Insomnia

Method:

- evaluation of insomnia in individuals with cancer (patients and survivors) via questionnaire (n = 982)
- Results: 30% of patients reported insomnia
  - 76% difficulty with frequent awakenings
  - 44% difficulty falling asleep
  - 35% wakening up for long periods
  - 33% wakening up too early

Cancer Treatment Complication: Insomnia

- Post-hoc analysis of data for a clinical trial evaluating the effects of paroxetine vs. placebo on fatigue in patients receiving chemotherapy
- Hamilton Depression Inventory was used to assess sleep disruption
  - thirty-eight questions
  - designed to evaluate 23 symptom domains
  - six questions assessing sleep

Cancer Treatment Complication: Insomnia

Patients:

- median age 58 years (range, 22 – 93)
- 72% female
- 68% previous surgery for cancer
- 88% Caucasian
- sample size < 50 for all cancers except lung, breast, gynecologic, breast, hematologic and alimentary tract cancers

Cancer Treatment Complication: Insomnia

Results:

- **Chemotherapy cycle 1:**
  - 37% insomnia symptoms
  - 43% met diagnostic criteria for insomnia syndrome
- Patients younger than 58 years were more likely to experience insomnia symptoms
- Women with breast cancer had the highest percentage of insomnia complaints
- Persistence of insomnia was seen
- Increased complaints of depression and fatigue in those with insomnia

Chemotherapy: Consequences and Toxicities

- Gonad Dysfunction
  - Sexual dysfunction
  - Females: premature menopause
  - Males: decrease sperm production
Cancer Therapy Complications: Hot Flashes

- chemotherapy-induced menopause → hot flashes
- incidence maybe as high as 75% with androgen deprivation therapy
- severity of hot flash ranges within population
- hot flashes do impact other symptoms ⇒ sleep
- treatment approaches:
  - progestational agents
  - estrogens
  - serotonin selective reuptake inhibitors
  - gabapentin
  - acupuncture
Cancer Survivors: Sexual Function

The risk of sexual dysfunction for any individual cancer survivor is increased by:

- overall emotional distress
- relationship conflict
- medications used for treatment of cancer, cancer-related complications and treatment-related symptoms
Androgen Deprivation Therapy: Managing Complications

- Loss of libido ± erectile dysfunction (ED)
  - assessment of baseline sexual function
  - individuals have different interest levels
  - depressive symptoms associated with ED
  - application of ED treatments
  - relationship issues
Case Study: Mr. Hurdley

- 77 y/o man with recent diagnosis of colon cancer
  - s/p surgery
  - planned adjuvant therapy: FOLFOX
- Social history:
  - Lives with wife and father-in-law
  - Retired manager in local factory
- PMH:
  - hypertension
  - COPD
  - diabetes
  - prostate cancer – q 3 months goserelin
Drug Therapy in the Individual with Cancer

“Management” of pharmacotherapy in the adult with cancer:

- cancer therapy(s)
- co-morbidities
- disease-related toxicity
- treatment-related toxicity
Androgen Deprivation Therapy: Complication of Therapy

- Metabolic/physiologic
  - loss of bone mineral density
  - anemia
  - worsening of comorbidities:
    - lipid disorder
    - hypertension
    - diabetes
    - heart disease
The Opportunity for Drug Therapy Management

Members of Health Care Team:

- Oncology Nurse(s)
- Primary Care Physician
- Oncologist(s)
- Pharmacist(s)
- Consultant(s)
- Home Care
- Social Worker