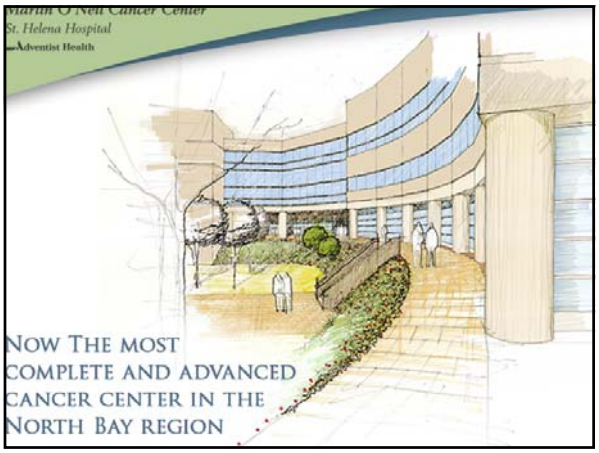

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Symptom Management
Practical Aspects

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Side Effects of Cancer Treatments

- CINV
- Dyspnea
- Fatigue
- Gastrointestinal Symptoms
- Hematologic Toxicities
- Insomnia
- Lymphedema
- Mucositis
- Neurotoxicity
- Pain
- Skin Reaction

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Commonly Reported Quality of Life Side Effe

- ❖ Fatigue
- ❖ Peripheral Neuropathy
- ❖ Cognitive Changes

Fatigue

- Most commonly reported side effect of treatment

Effective Strategies

- Screening for potential etologic factors
  (symptom clusters, fluid and electrolyte imbalance, depression, medications, anemia
- Energy Conservation and management
- Education
- Measures to optimize sleep quality
- Integrative therapies such as Yoga, Massage

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Managing Peripheral Neuropathy

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Chemotherapy-Induced Peripheral Neuropathy defined:

❖ "The end result of peripheral, motor, sensory and autonomic neuron damage secondary to neurotoxic chemotherapy agents that inactivate the components required to maintain the metabolic needs of the axon."

❖ Sensory
❖ Dose-related
❖ Cumulative

❖ Can be delayed appearing weeks to months after start of therapy

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Drugs commonly associated with PN:

✓ Taxanes
✓ Platinum-based drugs
✓ Vinca Alkaloids
✓ Thalidomide
✓ Bortezomib

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Symptoms of Chemotherapy-Induced PN

Sensory

✓ Paresthesia
✓ Hyper- or Hypoesthesia
✓ Dysesthesia
✓ Pain
✓ Numbness and tingling
✓ Electrical sensation
✓ Hyporeflexia
✓ Diminished or absent proprioreception
✓ Diminished or absent vibratory sensation
✓ Diminished or absent cutaneous sensation
✓ Diminished or absent sense of sharp / dull

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Symptoms of Chemotherapy-Induced PN

Motor

✓ Weakness
✓ Gait disturbance
✓ Balance disturbance
✓ Difficulty with fine motor skills

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Symptoms of Chemotherapy-Induced PN

Autonomic symptoms

✓ Constipation
✓ Urinary retention
✓ Sexual dysfunction
✓ Blood pressure alterations

Symptoms of Chemotherapy-Induced PN

- Can vary in onset, severity and length
- Patients describe PN as:
  - burning
  - tingling
  - electric shock sensation
  - painful numbness
  - pain during walking

Risk Factors for Chemotherapy-Induced PN

- Prior chemotherapy
- Older age
- Female gender
- Comorbid conditions
  - Diabetes (diabetic neuropathy)
  - HIV
  - Alcoholism
  - Vitamin B deficiency

Loss of Proprioception

Inability to coordinate the unconscious perception of movement and spatial orientation within the body

- Patients are at a greater risk for falls
- May affect ability to drive safely

Preventative Interventions

- Amifostine (found to be ineffective)
- Vitamin E (effective w/ Cisplatin & Paclitaxel
- Calcium & Magnesium (effective w/ Oxaliplatin)
- Carbamazepine (may be effective w/ Oxaliplatin)
- Glutamine (effective w/ Paclitaxel)
- Glutathione (may be effective w/ Cisplatin)

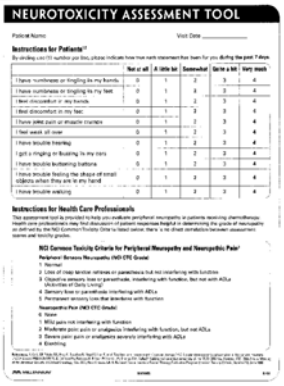
Treatment of Chemotherapy-Induced PN

- Gabapentin (may lower pain)
- Nortriptyline (may be effective in decreasing pain, neuropathy)
- Acetyl L-Carnitine (improvements in sensory & motor neuropathy)
- Acupuncture (improve sensation and gait)
- Physical activity / exercise (improvement in stance, functional reach and motor nerve conduction velocity)
- TENS (helpful in patients with diabetic neuropathy)
- Capsaicin ointment (used in patients with diabetic neuropathy showing decreases in hypoesthesia)
- Pregabalin (used in patients with diabetic neuropathy)

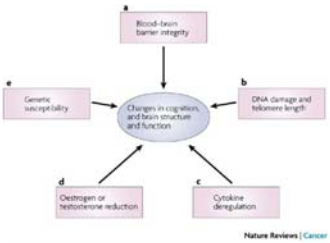
Neurotoxicity Assessment

- Use of a standardized assessment tool
  - baseline measurements
  - ongoing with each treatment
  - track progress
  - consider changing drugs within class if appropria
  - consider dose reduction if appropriate

Example from Millennium Pharmaceuticals


NEUROTOXICITY ASSESSMENT TOOL

Cognitive Changes



Cognitive Changes

- "Chemo Brain"
  patients describe as:
  - mental fog
  - mental cloudiness
  - experience before, during and after treatment
  - taking longer to finish tasks
  - trouble remembering common words
  - trouble multi-tasking
  - trouble concentrating
  - forgetful

Causes of Cognitive Changes

chemotherapy drugs can cause changes
- Reduction in size of parts of the brain relating t
  - memory
  - planning
  - putting thoughts into action
  - behavior
  - inhibition

Causes

- Cancer itself
- Chemotherapy
- Other drugs
- Patient age
- Stress
- Anemia
- Sleep problems
- Infection
- Depression
- Fatigue
- Hormonal changes
- Anxiety

How to manage

- Use a daily planner
- Exercise your brain
- Get enough sleep
- Exercise your body
- Eat more vegetables
- Set up and follow routines
- Minimize multi-tasking (one task at a time)
- Keep a diary (track memory deficits)

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Altered Brain Function After Chemotherapy

A study by HS Silverman et al. Neurology Reviews, Vol.14 No.11, 2006

- "Our study demonstrates for the first time that patients suffering from these cognitive symptoms have specific alterations in brain metabolism."
- Neuropsychologic testing and PET used to examine brain function in 16 women who had adjuvant chemotherapy for breast cancer
- Patients who had received chemotherapy had a decrease in their resting metabolism in the inferior frontal gyrus.
  - these patients had to "ramp up" activity more than the control subjects to recall the same information.
- Study noted that "chemo brain" is well known among cancer survivors but seldom discussed with oncologists in advance of treatment.

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Altered Brain Function After Chemotherapy

A study by HS Silverman et al. Neurology Reviews, Vol.14 No.11, 2006

Recommendations from study:

- Reassure the patient that memory or cognitive problems are a common side effect
- Obtain PET scans to determine whether metabolic changes have occurred.
  - differentiate from those patients that may also have early Alzheimer's or other neurologic problems

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Case Study: Anne

Adjuvant Breast Cancer

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HPI

- **2005:**
  - Prophylactic left breast mastectomy for benign breast parachym
  - Breast conservation surgery May 2005 for a 1.1 cm infiltrating ductal carcinoma grade 3 of 3 with lymphovascular invasion
  - 0/5 lymph nodes positive
  - ER+ / PR+ / HER2 3+
  - Post-op Adjuvant chemotherapy
    - dose-dense Doxorubicin / Cyclophosphamide (dd AC x 4)
    - followed by dose-dense Paclitaxel x 4
  - ** Patient deferred Herceptin*
  - Arimidex started post-chemotherapy but discontinued due to intolerance
  - Femara started then discontinued due to intolerance
  - Patient refused Tamoxifen

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Review of Treatments / Side effects

Doxorubicin / Cyclophosphamide (dose-dense)
- persistent nausea by cycle 4/4

Taxol (dose-dense)
- significant myalgia/arthralgia x 3-4 days after 1st cycle
- Intermittent left upper quadrant abdominal pain
  - transitory
  - may be related to bowel movements

Radiation
- significant fatigue
- skin reaction

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Review of Treatments / Side effects

S/P chemotherapy – 2006

Arimidex
- significant arthralgia leading to D/C
- switch to Femara (Letrozole) but was intolerant as well
- Patient refused Tamoxifen

- Persistent neuropathy secondary to Taxol
  - anesthesia: persistent decrease to sensation in hands & feet

- dysesthesia of feet
  - Neurontin (Gabapentin) started

- depression / anxiety
  - Prozac started

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2007

- Dizziness / "Spaciness"
  - patient stops Prozac & Neurontin
  - may be attributable to insomnia
    - patient averages 3-4 hrs sleep/night

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2009:

- Right modified radical mastectomy for 1.7 mod diff, IDC without LVI ER+, PR-, HER-2NEU negative
- Left mastectomy
- Oncotype DX score = 37 (25% chance of distant recurrence)
- MUGA: EF = 60%
- Plan:
  - TAC x 4 cycles (Taxotere, Adriamycin, Cyclophosphamide)
  - TC x 2 additional cycles (patient has previous hx of Adria use)

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TAC cycle 1 - October 2009

- Neulasta given post-chemotherapy to limit neutropenia
- *__FN__ (despite Neulasta)
- diarrhea
- severe bone pain (secondary to Neulasta)
- continuing painful neuropathy of hands & feet
- multiple psychosocial issues
- required hosptialization

PATIENT SAID STOP!

We negotiated:

Weekly Taxotere – November 2009

- significant fatigue continues
- continuing peripheral neuropathy
- mild anemia
- constipation (corrected with Lactulose)

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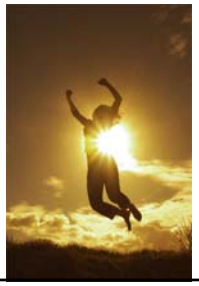
2009

- Patient due to complete adjuvant weekly Taxotere mid-February



Holistic Care

- Weekly support group
- Massage
- Got a pet
- Scheduled for training to be a fitter