

### Taking Care of You

**Stress** - produced by events that are perceived as demands on time, energy, or resources w/ threat that not enough time, energy, or resources available for full obligation; Vit C, Complex B Vits, Mg lost through stress

**Fight or Flight** - physiologic reaction to real or imagined threat arising from fear & anger

**Burnout** - emotional exhaustion/fatigue, depersonalization, ↓ personal accomplishment

### Language

1. Out of Control Lang. = I must, I have to, It's unfair
2. In Control Lang. = I can, I decided, I choose

### Patient Education & Supportive Care

#### Informed Consent

The patient MUST:

1. have the ability/capacity to make the decision
2. comprehend all info being given
3. give consent voluntarily w/out being forced, persuaded, threatened
4. be given info about tx, procedure, benefits/risks of having/not having tx, stats of benefits/risks occurring/not occurring

#### Types of Patient Edu.

1. Pamphlets
2. Group teaching
3. Video
4. Internet
5. Books

#### Patient Edu. About Tx. Room

1. Length of tx.
2. How patient will feel during tx.
3. Emphasize fact that they must remain still and breathe normally (unless DIBH)
4. Explain role of each therapist in the room

#### Body Language

1. Make eye contact and get on same level as patient

### Patient Education & Supportive Care (cont)

2. Pause & listen for understanding/?s
3. Have open body language
4. Show empathy

#### Most Likely To...

Receive info about tx. - younger patients  
See nurse & seek support - younger females  
Experience more stress - men

### Normal Values

**Hematocrit (Hct)** - volume % of RBCs in blood

M: 45 - 52%

F: 37 - 48%

**Hemoglobin (Hgb)** - protein in RBCs carrying O<sub>2</sub> from lungs to tissues of body & CO<sub>2</sub> back to lungs

M: 13.5 - 17.5 g/dL

F: 12 - 15.5 g/dL

Ch: 12 - 14 g/dL

#### Erythrocytes (RBCs)

M: 4.7 - 6.1 million cells/μL

F: 4.2 - 5.4 million cells/μL

#### Leukocytes (WBCs)

Adults: 5,000 - 10,000 cells/μL

#### Platelets

Adults: 200,000 - 500,000 platelets/μL

The following values are for adults:

#### Temperature

Oral: 96.8° - 98.6° F or 36° - 37° C

#### Pulse

60 - 100 beats/min

#### Respiration

12 - 18 breaths/min

#### BP

Systolic - pressure in arteries during ♥ contraction; top #

90 - 120 mmHg

Diastolic - pressure in arteries during ♥ relaxation; bottom #

60 - 80 mmHg

### Psychosocial Issues

**Psychosocial** - involves both psychological & social aspects of life

#### Situations where patients need additional support

1. Deciding whether or not to have tx.
2. Undergoing 1st tx.
3. Coping with experience of tx.
4. Coping with inconvenience of tx.
5. Dealing with long term considerations

#### Patient Centered Care

1. Assessment (QLI, FLIC, FACT)
2. Involvement in decision making
3. Info provision
4. Patient friendly resources
5. Holistic approach to care

#### Domains of Patient Transition at EOT

1. Psychological - cont. emotional distress, withdrawal from support
2. Physical - marks, scars, pain, difficulty sleeping
3. Social - ?ing where they fit in w/ friends/family/society
4. Spiritual - ?ing their spirituality

#### Grief vs Depression

**G:** somatic distress, ↓ usual patterns of behavior, agitation, sleep/appetite disturbances ↓ concentration, social withdrawal

**D:** same + helplessness, hopelessness, worthlessness, guilt, suicidal thoughts

**G:** assoc. w/ disease progression

**D:** ↑ prevalence in patients w/ advanced disease

**G:** patients retain capacity for pleasure

**D:** patients enjoy nothing

**G:** comes in waves

**D:** constant

**G:** passive wishes for death to come quickly

**D:** intense/persistent suicidal thoughts

**G:** able to look forward to future

**D:** no sense of positive future

### Psychosocial Issues (cont)

**Resentment** - experience of negative emotion felt due to real/imagined wrong done

**Anger** - emotional response related to one's psychosocial interpretation of event

### Death & Dying

#### Dying with Dignity

- option for qualifying terminally ill adults to request and receive prescription med that will end their life
- legal in CA, CO, VT, HI, NJ, ME, OR, WA, DC

#### Stages of Grieving

1. Denial
2. Anger
3. Bargaining
4. Depression
5. Acceptance

\*In no particular order

\*Not every individual goes through every stage

#### Physical Signs/Symptoms in Last 48 hrs.

1. Noisy/moist breathing
2. Urinary dysfunction
3. Pain
4. Restlessness/agitation
5. Dyspnea (difficulty breathing)
6. Nausea/vomiting
7. Sweating
8. Confusion

**Palliative Care** - relieving symptoms w/out affecting disease process, chance of improving QOL, may be given at same time as curative tx.

**Hospice**- tx. doesn't offer hope, death expected

#### Autonomy

Each person entitled to determine own destiny UNLESS:

1. Decision may cause harm to others or oneself
2. Patient is incompetent to make the decision
3. "Physician' privilege"

**DNR** = Do Not Resuscitate

### Death & Dying (cont)

**Advanced Directive** - document that outlines one's medical desires & requests if they are in a situation where they can't make a decision

**Durable Power of Attorney (DPOA)** - states the person whom the patient has chosen to make a decision in place of them if the patient is unable to do so, aka Health Care Proxy

### Body Image

**RESOURCE** - [link text](#) : Look Good Feel Better

**Factors** - visibility, pain, location of tumor, prosthetics, control

**Alopecia** - hair loss

**Cachexia** - weakness and wasting of the body due to severe chronic illness

#### Potential Side Effects of RT on Body Image

1. **Bone Mets**: pain relief/improvement of mobility
2. **Malignant Cord Compression** - improvement/prevention in further deterioration in function
3. **SVC Obstruction/Facial Tumors** - improvement in cosmetics & symptoms/reduction in edema/tumor shrinkage
4. **Esophageal Obstruction** - relief of obstruction/improvement in eating ability
5. **Discharging/Fungating Wounds** - alleviation of discharge/tumor shrinkage
6. **Hemoptysis (bleeding of airway; coughing up blood)/Hematuria (blood in urine)/Rectal Bleeding** - control of bleeding

#### Stages of Adapting to Body Image

1. **Impact of Diagnosis**- shock rather than anger; may be directed towards health professional or family
2. **Mourning**- yearning to return to previous self
3. **Defect**- seeking info or trying different coping strategies
4. **Reconstruction**- accepts the use of aids; able to plan for the future

### Sexuality

#### Potential Effects of Rad on Sexual Organs

**M**: pelvic fibrosis, sympathetic nerve injury, ↓ semen volume, ↓ testosterone, ↓ penile BP, fibrosis of cavernosal arteries

**F**: pelvic fibrosis, atrophy of vaginal wall, ↓ tissue elasticity, ↓ vaginal lubrication, scarring, ulceration, obliteration of small blood vessels

#### Fertility Preservation

1. **Ovarian/testicular shielding** - may maintain function but small chance
  2. **Laparoscopic Ovarian Transposition** - effective method for maintaining reproductive function & ↓ need for hormone replacement therapy
  3. **Testicular Transposition** - for fields restricted to inguinal pelvis
  4. **Embryo Cryopreservation** - for use in vitro, may take 4-6 weeks to collect viable oocytes; for patients of reproductive age
  5. **Cryopreservation of Sperm** - intracytoplasmic sperm injection (ICSI) requires few sperm for successful fertilization
- ALARM**- baseline assessment to determine sexual function before tx.
- Activity, Libido, Arousal, Resolution, Medical History

### Sexuality

Rad Dose (Gy)	Effect on Ovarian Function
0.6	None
1.5	No lasting damage for young F Some steril. risk for F >40
2.5 - 5	30 - 40% steril. risk for F 15-40 >90% steril risk for F >40
5 - 8	50 - 70% steril. risk for F 15 - 40

### Sexuality (cont)

>8 100% risk of permanent steril.

**Ovaries** produce **oocytes** (fetus = 6 million, birth = 2 million, puberty = 100,000) & secrete **steroid hormones** for sexual function & sexual maturity

Tolerance of ovary ↓ w/ ↑ age, ↑ dose per fraction, ↑ total dose

#### Possible solutions:

1. Vaginal dilator for stenosis, adhesions, dyspareunia (pain due to penetration)
2. Lubrication for dryness
3. Diff sex positions for ↓ elasticity or scarring

### Sexuality

#### Rad Dose (Gy) Effect on Spermatogenesis

<0.1	None
0.1 - 0.3	Temp oligospermia w/ full recovery by 12 mos.
0.3 - 0.5	Temp oligo/azoospermia 4 - 12 mos. after RT w/ full recovery by 48 mos.
0.5 - 1	>90% temp OS/AS 3 - 17 mos. w/ recovery 8 - 26 mos
1 - 2	100% AS 1-2 mos. w/ return of sperm counts 11 - 30 mos.
3 - 4	100% AS w/ no recovery up to 40 mos.
12	Permanent AS w/ ↓ testicular size and ↓ testosterone production

**Testes** produce **spermatozoa** for reproduction & **testosterone** (secreted by **Leydig cells**) for sexual function & maturity

**Possible solutions** - pharm. drugs, penile implants, vacuum device for erectile dysfunction

**Oligospermia (OS)** = LOW sperm count

**Azoospermia (AS)** = NO sperm count

### Human Diversity

**Diversity** - differing from one another; made up of distinct characteristics, qualities, or elements

**Globalization** - process of interaction & integration among people, companies, and govts. of different nations; driven by international trade and investment

#### Cultural Diversity

1. **Communication**- can help avoid offending people; be aware of who's around you and the basic norms of their culture to be able to provide better patient centered care
2. **Space** - distance extending in all directions; know personal/cultural boundaries
3. **Time** - cultures have different time orientations; ex: someone may have a certain time of day they pray so we have to try and accommodate
4. **Environmental Control**- ability of people to control nature; differences in health practices and definitions of health and illness vary in each culture
5. **Biologic Variations**- certain people are susceptible to certain diseases; differences in nutritional preferences; ethnically/racially related characteristics
6. **Social Organizations**- enculturation; some hiring practices support diversity to provide better cultural understanding of different populations

#### Cultural Sensitivity

**Values** - est. early in childhood through unconscious process of socialization; foundation of beliefs

**Beliefs** - knowledge, opinions, and faith about life are built on individual values

**Customs** - Dietary habits, religious practices, communication patterns, family structure, health practices

**Cultural Competency**- possessing a set of attributes that enable effective interactions in a cross-cultural or multicultural environment

### Human Diversity (cont)

1. Valuing diversity
2. Having the capacity for cultural assessment
3. Having consciousness of the dynamics of cross-cultural interactions
4. Institutionalizing cultural knowledge
5. Developing adaptations of service delivery that reflect an understanding of a multicultural environment

**Civil Rights Act of 1964**- prohibits discrimination on the basis of race, color, and national origin; requires health care organizations and providers who receive federal funding to make interpreter services available to patients who have limited proficiency in English

**Vienna Declaration for Human Rights**- protects those with disabilities and its values include:

1. Dignity
2. Autonomy
3. Equality
4. Solidarity

#### Types of Interpreters

1. Telephone
2. Video Conferencing
3. Voice Activated Software
4. Family/friends (be cautious)

#### Discrimination

1. Age
2. Ethnicity or national Origin
3. Race
4. Gender or sexual orientation
5. Mental/physical ability

**Ethnicity**- an individual's distinctive racial, national, religious, linguistic, or cultural heritage

**Ethnocentrism**- viewing norms/values of one's culture as the only acceptable norms/values and using that idea as a standard to judge all other cultures



### Human Diversity (cont)

**Racism**- believing one race or culture is superior to others and using that idea to discriminate races that are considered to be inferior

**Assimilation**-an individual who moves further away from their true identity (culture, religion, language, etc.) and slowly "fits in" with the majority of society (whatever is considered to be "normal"); can happen consciously or subconsciously

#### English Only

Requiring to speak only English at the workplace is legal if organization shows it's a business necessity

1. To enable supervisors who speak only English to properly monitor job performance
  2. To promote safety in emergency situations
  3. To promote efficiency when multi-lingual speakers collaborate on work projects with English only speakers
  4. To promote customer relations when speaking with English speaking customers
- Issues: provides a means for national origin discrimination, everyone learns at a different pace and it takes time to be become proficient in a language, patients may become ill before learning the language

### Fatigue

**Fatigue** - characterized by overwhelming exhaustion, lack of energy, difficulty concentrating, emotional distress, depression

Most common symptom and side effect of cancer tx. (75-100% of patients affected) but direct cause unknown

#### Indirect causes

1. Need for extra energy to repair/heal body tissue damaged by tx.
2. Buildup of toxic substances that are left in the body after cells are killed by tx.
3. Effect of biologic therapy on immune system

### Fatigue (cont)

4. Changes in the body's sleep cycle

**Factors that contribute**- anemia, hormone levels that are too low or too high, trouble breathing or getting enough O<sub>2</sub>, infection, pain, stress. loss of appetite or not getting enough calories and nutrients, dehydration, changes in how well the body uses food for energy, weight loss, loss of muscles/strength, meds that cause drowsiness. problems getting enough sleep, being less active, other medical conditions

#### Risk Factors

1. Age/performance status
2. Type/site of tx. (volume, dose, normal tissue damage)
3. Pre-tx fatigue, commute to tx.
4. Blood counts

#### Patients most affected by fatigue

1. **Lung patients**- breathing, coughing, infection, if tumor close to mediastinum then issues with swallowing
2. **Head and Neck patients** - weight loss from not eating enough because everything hurts
3. **Concurrent chemo patients** - both the radiation and chemo effects together are the most difficult to deal with
4. **Brain patients** - sleep issues

#### Why it's important

↓ QOL for patient, ↓ self-care ability, ↓ ability to recover, ↑ feeling of ill health

#### Managing Fatigue

1. Warn patients so they are prepared and educated
2. Allow patients to talk about it
3. Recommend exercise if possible
4. Stress management techniques
5. Psychological counseling
6. Sleep

### Skin Reactions

**Most likely to occur in the following rad tx. areas:**

1. Breast
2. Head and Neck
3. Perineal
4. Where skin folds rub together

Tend to peak towards EOT, usually worsen after tx. completed

Most reactions heal within **4 weeks** after EOT

#### Main Layers of Skin

1. Epidermis (superficial)

##### - Most sensitive to rad

- Basal layer rapidly divides; when cells of this layer die off, repopulation of epidermis is disrupted so **degree to which basal layer is affected = degree of skin reaction**

2. Dermis (deep)

**RTOG** used to assess skin reactions (scoring is 0-4)

Adv: accurate estimate of area of skin affected and of severity of skin reaction

**Risk Factors**- Moist areas of the body, skin folds, nutrition, age, ethnicity, overall skin condition, dose, energy, fractionation, bolus

#### Erythema

**Clinical Presentation**- red, inflamed, sometimes shiny, skin feels hot/itchy/uncomfortable

Expected at 1.5 Gy and higher, usually after **20-25 Gy**

**Skin Care Recommendations**- Gentle washing with mild soap, pat skin dry, loose cotton clothing, no moisturizer/perfume/deodorant/makeup/razors/sun in the area of treatment, hydrocortisone, aloe vera without alcohol, benadryl cream

#### Dry Desquamation

**Clinical Presentation** - dry and flaky skin, usually itchy

Expected at **40+ Gy**

### Skin Reactions (cont)

*Skin Care Recommendations-* Gentle washing with mild soap, pat skin dry, loose cotton clothing, avoid friction, topical steroids usually help

#### Moist Desquamation

*Clinical Presentation-* blister/vesicle formation, serous drainage, pain, exposure of dermal layer

Expected at **50+ Gy**

*Skin Care Recommendations-* silver sulfadiazine cream (antibacterial), hydrogel

### Nutrition (NOT DONE YET)

**Anorexia-** lack/loss of appetite for food

#### Symptoms

1. Fatigue
2. Dry mouth, esophagitis, nausea, vomiting
3. Presence of pain/infection
4. Presence of stress, anxiety, depression
5. Change in lifestyle patterns

#### Advice to patients

1. Eat small meals at frequent intervals
2. Adjust their protein/calorie intake
3. Avoid drinking fluids with meals so they do not feel full faster
4. Remove unpleasant smells
5. Use nutritional supplements

**Early satiety-** inability to eat a full meal or feeling full after only a small amount of food

#### Late Tumor Burden-

Larger tumor burden = more difficult to restore energy

**Esophagitis** - inflammation of the esophagus

**Marasmus-** severe undernourishment (usually occurs in children)

**Cachexia-** wasting away of the body due to severe chronic illness

**Dysphagia-** difficulty swallowing

**Clinically Significant Weight Loss**

**Factors Affecting Nutritional Status**

### Nutrition (NOT DONE YET) (cont)

1. **Pre Existing condition(s)** - diabetes, liver/renal disease, poor housing
  2. **Surgery Related Factors** - chewing/swallowing for H&N, early satiety for stomach
  3. **Cancer Related Factors** - weight loss, anorexia, early satiety, altered body image
- Side Effects**

#### General Therapist Recommendations

1. Drink plenty of fluids
2. Avoid raw fruits/veggies
3. Reduce alcohol consumption
4. Avoid tobacco products
5. Avoid extremely hot/cold foods

### Tolerance Doses 5/5

Site	TD 5/5 (Gy)
Testes	1
Ovaries	2 - 3
Bone Marrow	2.5
Growing Cartilage	10
Lens	10
Whole Lung	17.5
Whole Kidney	23
Whole Liver	30
Salivary Glands	32
Whole Intestine	40
Whole Heart	40
Whole Brain	45
Retina	45
20 cm Spinal Cord	45
1/3 Lung	45
1/3 Liver	50
1/2 Intestine	50
1/2 Kidney	50
5 -10 cm Spinal Cord	50
Whole Stomach	50
Whole Lymph Node	50
Optic Chiasm	50
Cornea	50
Whole Esophagus	55

### Tolerance Doses 5/5 (cont)

100 cm <sup>2</sup> Skin	55
1/3 Stomach	60
1/3 Brain	60
1/3 Heart	60
1/3 Esophagus	60
10 cm <sup>2</sup> Adult Bone	60
50 cm <sup>2</sup> Oral Cavity & Pharynx	60
Rectum	60
Mature Cartilage	60
Adult Muscle	60
2/3 Bladder	65
10 cm Ureters	70
1/3 Bladder	80
10cm <sup>2</sup> Large Arteries and Veins	80
Vagina	90
Uterus	100