Supportive Oncology and Palliative Radiotherapy

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I have no financial disclosures relevant to this presentation.
Objectives:

- To cover all of palliative radiotherapy and supportive oncology in 90 minutes…
Objectives:

- To list differences between palliative care and hospice care
- To describe techniques to improve complex communication with patients with life-limiting illness
- To apply fundamental principles of symptom management including pain management and anti-emesis management
- To generate a framework for thinking about the utilization of palliative radiotherapy for patients with advanced cancer
- To apply ASTRO guidelines for palliative radiotherapy to clinical practice
DYING IN AMERICA
 Improving Quality and Honoring Individual Preferences Near the End of Life
Palliative care curriculum?
What is palliative care?

Center to Advance Palliative Care (CAPC):

Palliative care is specialized medical care for people with serious illnesses. This type of care is focused on providing patients with relief from the symptoms, pain, and stress of a serious illness - whatever the diagnosis.

The goal is to improve quality of life for both the patient and the family. Palliative care is provided by a team of doctors, nurses, and other specialists who work with a patient's other doctors to provide an extra layer of support. Palliative care is appropriate at any age and at any stage in a serious illness, and can be provided together with curative treatment.

https://www.capc.org/
What is in a name?

Palliative care

...versus...

Supportive oncology
Palliative Care: An Extra Layer of Support

- Improves quality of life
- Reduces symptom burden
- Reduces depression
- Increases patient and family satisfaction with care
- May improve length of survival
- May decrease burnout among other providers
Primary versus Specialist Palliative Care

- Primary palliative care is provided by all providers including oncologists (yes, radiation oncologists) and primary care clinicians.

- Specialty palliative care is provided by clinicians who have extra training in:
  - symptom management (pain, constipation, N/V, SOB, anxiety, depression)
  - communication skills

- Specialty palliative care treats the person as well as the disease.

- Multidisciplinary team includes physicians, nurses, social workers, chaplains and other allied health professionals.
ASTRO Choosing Wisely Campaign #8:

“Don’t initiate non-curative radiation therapy without defining the goals of treatment with the patient and considering palliative care referral.”
Models of Palliative Care: Old Model

Disease-directed therapies

Diagnosis

Palliative Care

Death and Bereavement
Multiple randomized trials support early palliative care

- **Temel, NEJM 2010 (MGH)**
  - Metastatic NSCLC patients at diagnosis randomized to early palliative care versus standard care
  - 151 patients (101 evaluable)
  - Significant improvements in quality of life and mood, overall survival benefit (11.6 vs 8.9 months), less aggressive care at end of life

- **Zimmerman, Lancet 2014 (Princess Margaret)**
  - Lung, GI, GU, breast, GYN cancer patients randomized to early palliative care consultation and follow-up versus standard care
  - 461 patients randomized, 393 evaluable
  - Significant improvements in symptoms, quality of life, satisfaction with care, spiritual well-being

- **Bakitas, Project ENABLE II (UAB)**
  - Nurse-led intervention, randomized
  - Significant improvements in mood, quality of life, not symptoms
Models of Palliative Care: Current Model

Disease-Directed Therapies

Diagnosis  |  Palliative Care  |  Death and Bereavement
Models of Palliative Care

Congress Practice Model
- Pain consult
- Neurology consult
- GI consult
- Chaplain consult
- Palliative care consult
- End-of-Life issues
- Pulmonary consult
- Psychiatry consult
- Psychosocial distress
- Cancer Assessment & Treatment

Integrated Care Model
- Symptoms & Distress
- Palliative/Supportive Care Team
- Cancer Assessment & Treatment
- Endoscopic Stenting
- Thoracentesis
- Suicide ideation
- GI consult
- Pulmonary consult
- Psychiatry consult

Bruera. JCO. 2010.
# Palliative Care versus Hospice

<table>
<thead>
<tr>
<th>Palliative Care</th>
<th>Hospice</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ Can be offered at any time during the course of illness, regardless of prognosis</td>
<td>♦ Insurance benefit only available when physicians certify life expectancy less than 6 months</td>
</tr>
<tr>
<td>♦ Patients still have access to any treatment modality including chemotherapy, surgery, radiotherapy</td>
<td>♦ Patients must forego further life-prolonging therapy</td>
</tr>
</tbody>
</table>
The question is not:

What can I offer the patient?

The question IS:

What is best for this patient at this time?
Communication Skills

A key component of early palliative care interventions

(Or: How to stop talking and start listening…)
Communication tasks

- Multiple tasks related to “bad news”, prognosis, goals of care, conflict – communication skills can be taught and do impact patient care

- Ask…
- Tell…
- Ask…

- Curiosity approach…

- Best taught with methods other than PowerPoint
PAUSE: Moving the conversation upstream

- Communication is a learned expertise.
- "Bad stuff won't be quite so bad if we don't talk about it..."

- **Pause** - something I would like to put on our agenda today
- **Ask permission** - explaining why: this will help me guide you...
- **Understand values** - if this got worse, what would be important?
- **Suggest** - find a surrogate - who knows you best?
- **Expect emotion** - empathize first (threshold)

(vitaltalk.org)
Setting the stage…

New diagnosis/ new data/ trajectory/ “bad news”

SPIKES protocol

- **Setting** up the interview
- assessing **Perception**
- obtaining an **Invitation**
- imparting **Knowledge**
- addressing **Emotion**
- **Summary**/Strategy
NURSE: Responding to emotions...

Name the emotion
“It sounds like this has been frustrating…”

Understand the emotion
“It must be so hard to be in pain like that…”

Respect (praise) patient
“I am so impressed you have been able to…”

Support the patient
“The team and I will be here to help you with…”

Explore the emotion
“Tell me more about how … is affecting you…”

Respond directly to patient/family response to receiving information. (“I can see this is upsetting…”)
Poll to assess who should discuss goals of care in clinical vignette: PCP, oncologist or palliative care? (PCP >50% of votes)

Comments section: It should be a team approach, based on who knows patient, not based on assigning responsibility

Role of the radiation oncologist?
Whose job is it?

CanCORS study demonstrated very high percentages of patients (up to 70%) with metastatic NSCLC or colon cancer who believed cancer was curable.

64% of patients receiving palliative radiotherapy for stage IV NSCLC believe one goal of radiotherapy is cure.

Many patients think it is the physician’s job to raise issues...

So who should have these discussions with patients?
Goals of care conversations

- The “Surprise Question”
- Starts early: begins at diagnosis, moves through disease process
- More than what residents often describe: not just “get the DNR”
- Ongoing conversation over the course of the illness trajectory: What is important to patient and family in current illness context?
- Helpful to have different team members to discuss goals: Reliance on oncology team to discuss “treatment options” may make it harder for oncology team to review goals
Why is this conversation different?

Atul Gawande, NYT, October 5, 2014
“The Best Possible Day” (from Being Mortal)

- What is (your) understanding of (your) health or condition?
- What are (your) goals if (your) health worsens?
- What are (your) fears?
- What are the trade-offs (you) are willing to make and not willing to make?
Prognostication: A complex and changing science

“Doc, how long do I have?”
“Always give a grave prognosis, my boy! If they die, you’re accurate. If they live, you’re skilled!”
What might prognosis affect?

- Treatments suggested/offered by doctors

- Decisions made by patients/families
  - Medical
  - Life

- Other
  - Insurance/medical care provision
Life Expectancy Estimates

- Treatment intent
  - Curative versus Palliative intent

- Best, worst, average scenarios

- Routinely overestimated by physicians

- Calculations for various populations
  - Hospice
  - Cancer – end-stage vs. metastatic
  - Cancer specific

- Different calculators for different time-frames
Physicians routinely overestimate prognosis

2000 BMJ article studied life expectancy estimated by physicians:

- time remaining was overestimated by a factor of 5.3
- more experienced physicians gave more accurate predictions
- accuracy of prediction inversely proportional to length of doctor-patient relationship

Confirmatory studies in radiation oncology

### TABLE 4. Studies That Confirm Inaccurate Physician Prognostication of the Life Expectancy of Patients Referred for Palliative Radiotherapy

<table>
<thead>
<tr>
<th>STUDY</th>
<th>STUDY TYPE</th>
<th>NO. OF PATIENTS</th>
<th>STUDY SPECIFICS AND FINDINGS</th>
</tr>
</thead>
</table>
| Gripp 2007\(^{20}\) | Prospective single-institutional review | 216             | - Physicians overestimated life expectancy of patients dying within one mo up to 95\% of the time  
- Prognostic accuracy did not improve with length of time in practice |
| Chow 2005\(^{33}\)    | Retrospective single-institutional review | 793             | - Six radiation oncologists estimated survival for patients referred for palliative radiotherapy consultation  
- Median overall survival for all patients was 15.9 wk  
- The average survival overestimation was 12.3 wk  
- Survival overestimation was 21.9 wk for those who lived less than 3 mo |
| Fairchild 2014\(^{34}\)    | Prospective single-institutional review | 155             | - Physicians, nurses, radiation therapy technologists, and allied health professionals estimated survival for patients referred for palliative radiotherapy consultation  
- Median survival for all patients was 87 d  
- 72\% of estimates were overly optimistic  
- Physician estimates were slightly less accurate than those made by nurses and radiation therapy technologists |
Drivers of Prognosis

• Karnofsky Performance Status
• Palliative Performance Status
  • Modification of KPS with ambulatory status, activity and evidence of disease, self-care, intake and level of consciousness
• Symptoms
• Laboratory values (LDH, CRP, Cr, Alb, WBC)
• Histology, stage, extent of metastatic disease
• Molecular markers
Short-term prognostic tools

![Prognostic Factors by Percent of Models](chart)

- Physician's survival prediction
- Metastasis characteristics
- Primary tumor site
- Lab values
- Clinical symptoms
- Performance Status

Number of Risk Factors (NRF)

- KPS $\leq 60$
- Non-breast primary
- Metastasis other than bone

<table>
<thead>
<tr>
<th></th>
<th>0-1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Survival</td>
<td>60 weeks</td>
<td>26 weeks</td>
<td>9 weeks</td>
</tr>
<tr>
<td>3 month</td>
<td>80%</td>
<td>73%</td>
<td>35%</td>
</tr>
<tr>
<td>6 month</td>
<td>68%</td>
<td>51%</td>
<td>14%</td>
</tr>
<tr>
<td>12 month</td>
<td>53%</td>
<td>26%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Dutch Bone Metastasis Study

- KPS, primary tumor type, visceral metastasis
- Applies only to patients with bone metastasis

<table>
<thead>
<tr>
<th>Score</th>
<th>Mean Survival (mo) (95% CI)</th>
<th>Median Survival (mo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>4.8 (3.8-5.7)</td>
<td>3</td>
</tr>
<tr>
<td>4-5</td>
<td>13.1 (11.3-14.8)</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>18.3 (15.2-21.4)</td>
<td>18.7</td>
</tr>
</tbody>
</table>

van der Linden et al Cancer 2005.
TEACHH Model

- Type of cancer (lung and other v breast/prostate)
- ECOG PS (2-4 v 0-1)
- Age (>60 y v < 60 y)
- Chemotherapy (>2 courses v 0-1 course)
- Hospitalizations within 3 mo of RT (0 v >1)
- Hepatic metastases present v absent

- 0-1: MS 19.9 mo
- 2-4: MS 5 mo
- 5-6: MS 1.7 mo
Cord Compression (Rades et al)

Table 1. Significant Prognostic Factors and Corresponding Scores

<table>
<thead>
<tr>
<th>Prognostic Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of primary tumor</td>
<td></td>
</tr>
<tr>
<td>Breast cancer</td>
<td>8</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>7</td>
</tr>
<tr>
<td>Myeloma/lymphoma</td>
<td>9</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>3</td>
</tr>
<tr>
<td>Other tumors</td>
<td>4</td>
</tr>
<tr>
<td>Other bone metastases at the time of RT</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
</tr>
<tr>
<td>Visceral metastases at the time of RT</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
</tr>
<tr>
<td>Interval from tumor diagnosis to MSCC, mo</td>
<td></td>
</tr>
<tr>
<td>≤15</td>
<td>4</td>
</tr>
<tr>
<td>&gt;15</td>
<td>7</td>
</tr>
<tr>
<td>Ambulatory status before RT</td>
<td></td>
</tr>
<tr>
<td>Ambulatory</td>
<td>7</td>
</tr>
<tr>
<td>Nonambulatory</td>
<td>3</td>
</tr>
<tr>
<td>Time of developing motor deficits before RT, d</td>
<td></td>
</tr>
<tr>
<td>1-7</td>
<td>3</td>
</tr>
<tr>
<td>8-14</td>
<td>6</td>
</tr>
<tr>
<td>&gt;14</td>
<td>8</td>
</tr>
</tbody>
</table>

RT indicates radiotherapy; MSCC, metastatic spinal cord compression.

Figure 2. Kaplan-Meier curves of the 3 newly designed groups of patients (Pts) in the current study are shown with respect to survival (Group I: 20-30 points; Group II: 31-35 points; and Group III: 36-45 points).
Recursive Partitioning Analysis

- RPA classification scheme:
  - Class I: KPS ≥70, <65yrs, controlled primary, no systemic metastasis (MST 7.1 mos)
  - Class III; KPS < 70 (MST 2.3 mos)
  - Class II; all others (MST 4.2 mos)

Diagnosis-Specific Graded Prognostic Assessment

<table>
<thead>
<tr>
<th>Non-small-cell and small-cell lung cancer</th>
<th>GPA Scoring Criteria</th>
<th>Patient Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prognostic Factor</strong></td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Age, years</td>
<td>&gt; 60</td>
<td>50-60</td>
</tr>
<tr>
<td>KPS</td>
<td>&lt; 70</td>
<td>70-80</td>
</tr>
<tr>
<td>ECM</td>
<td>Present</td>
<td>–</td>
</tr>
<tr>
<td>No. of BM</td>
<td>&gt; 3</td>
<td>2-3</td>
</tr>
<tr>
<td>Sum total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median survival (months) by GPA:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1.0 = 3.0; 1.5-2.0 = 5.5; 2.5-3.0 = 9.4; 3.5-4.0 = 14.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Melanoma</th>
<th>GPA Scoring Criteria</th>
<th>Patient Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prognostic Factor</strong></td>
<td>0</td>
<td>1.0</td>
</tr>
<tr>
<td>KPS</td>
<td>&lt; 70</td>
<td>70-80</td>
</tr>
<tr>
<td>No. of BM</td>
<td>&gt; 3</td>
<td>2-3</td>
</tr>
<tr>
<td>Sum total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median survival (months) by GPA:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1.0 = 3.4; 1.5-2.0 = 4.7; 2.5-3.0 = 8.8; 3.5-4.0 = 13.2</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Breast cancer</th>
<th>GPA Scoring Criteria</th>
<th>Patient Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prognostic Factor</strong></td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>KPS</td>
<td>≤ 50</td>
<td>60</td>
</tr>
<tr>
<td>Subtype</td>
<td>Basal</td>
<td>n/a</td>
</tr>
<tr>
<td>Age, years</td>
<td>&gt; 60</td>
<td>n/a</td>
</tr>
<tr>
<td>Sum total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median survival (months) by GPA:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1.0 = 3.4; 1.5-2.0 = 7.7; 2.5-3.0 = 15.1; 3.5-4.0 = 25.3</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Renal cell carcinoma</th>
<th>GPA Scoring Criteria</th>
<th>Patient Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prognostic Factor</strong></td>
<td>0</td>
<td>1.0</td>
</tr>
<tr>
<td>KPS</td>
<td>&lt; 70</td>
<td>70-80</td>
</tr>
<tr>
<td>No. of BM</td>
<td>&gt; 3</td>
<td>2-3</td>
</tr>
<tr>
<td>Sum total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median survival (months) by GPA:</td>
<td></td>
<td></td>
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<tr>
<td>0-1.0 = 3.3; 1.5-2.0 = 7.3; 2.5-3.0 = 11.3; 3.5-4.0 = 14.8</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GI cancers</th>
<th>GPA Scoring Criteria</th>
<th>Patient Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prognostic Factor</strong></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>KPS</td>
<td>&lt; 70</td>
<td>70</td>
</tr>
<tr>
<td>Median survival (months) by GPA:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1.0 = 3.1; 2.0 = 4.4; 3.0 = 6.9; 4.0 = 13.5</td>
<td></td>
<td></td>
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</tbody>
</table>

Diagnosis-Specific Graded Prognostic Assessment

Figure 2: Kaplan-Meier curves for survival for six diagnoses by Graded Prognostic Assessment (GPA) group, demonstrating excellent separation between groups \( (P<0.001) \) for each diagnosis: (A) breast cancer; (B) non-small-cell lung cancer; (C) small-cell lung cancer; (D) melanoma; (E) renal cell carcinoma; and (F) GI cancer. BM, brain metastases.
Discussing Prognosis:
Tips and Techniques
The Median is NOT the message…

- Stephen J. Gould article
  - Abdominal Mesothelioma
  - Median survival 8 months
  - But what about the tail?

- “Lies, Damned Lies and Statistics”

- Twain: “Reports of my death are greatly exaggerated.”
**ADAPT**

- **Ask** what the patient knows/wants to know
- **Discover** what information about the future is helpful
- **Anticipate** ambivalence
- **Provide** information
- **Track** emotion

- What have other doctors told you? What have you been thinking about?
- Statistics? Average time? Living until a specific date?
- Can be scary, may be helpful to discuss why we review prognosis
- Best/worst/average scenario, ranges
- “I wish I had better news…”
Setting the stage…

Ask explicitly:

“How much would you like to know about prognosis?”

Okay to normalize range of expectations and that not everyone wants details…

If patient wants to know, explore in more detail:

“What kind of information can I provide to you?”

Examples: statistics, best and worst case scenarios, specific event patient is hoping to live for, etc.

If patient does not want to know, will it impact decision-making? If so, explore reasons patient does not want to know.
“You’ve got six months, but with aggressive treatment we can help make that seem much longer.”
More resources on communication

- Vitaltalk.org: An Interactive website with many resources that covers fundamentals of communication skills including:
  - Establishing rapport
  - *Responding to emotion*
  - Disclosing serious news
  - *Offering prognostic information*
  - Conducting a family conference
  - Defusing conflicts
  - *Resetting goals of care*

- Oncotalk: depts.washington.edu/oncotalk/
- Respecting Choices: www.gundersenhealth.org/respecting-choices
- The Conversation Project: theconversationproject.org
- Five Wishes: www.agingwithdignity.org/five-wishes.php
- ASCO Palliative Care brochures
Supportive Oncology

SYMPTOM MANAGEMENT
  Pain Management
  Pain Flare
  Nausea and Vomiting
Why study symptom management?

- Poor Quality of Life and patient satisfaction
- Radiotherapy treatment breaks

Worse treatment outcomes (including OS)

Referring provider satisfaction
Symptom Management: The Obvious

- **SCREENING**
  - Characterization of Symptoms
  - Differential Diagnosis
  - Symptom Management (pharmacologic and non-pharmacologic)
    - Anticipated side effect or is ongoing workup necessary?
    - Routine re-assessment of symptom management during and after treatment

Repeat Screening (every visit)
Symptom Characterization

- Is this an expected side effect of treatment (chemotherapy, radiotherapy, surgery)?
- Is the symptom responding as anticipated to usual management?

- Fully characterize and document the symptom:
  - Temporality (Onset, Duration, Course, Daily Fluctuation)
  - Location and radiation (pain)
  - Quality (patient descriptors – use their words); numeric scales
  - Interference with life
  - Exacerbating and alleviating factors
  - Modulating factors (psychological, spiritual distress, coping, cognitive impairment)
  - Focused exam
Supportive Oncology

SYMPTOM MANAGEMENT

Pain Management
Cancer related pain is undertreated.

- Multiple studies have demonstrated inadequacy of analgesia in patients with cancer related pain.
- Studies relate pain score with analgesia prescribed to determine rate of undertreatment based on Pain Management Index (PMI).
- Rates of undertreatment of pain have been in the 40-50% range since studies first started exploring in the mid-1990s.

- 2014 update: Updated systematic review of articles published 2008-2013 shows a decrease in undertreatment of pain.
- Few studies explore pain management in radiation oncology.

<table>
<thead>
<tr>
<th>Years</th>
<th>Weighted mean (percent with negative PMI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994-2000</td>
<td>46.6%</td>
</tr>
<tr>
<td>2001-2007</td>
<td>41.5%</td>
</tr>
<tr>
<td>2008-2013</td>
<td>31.8%</td>
</tr>
</tbody>
</table>

Greco, T. JCO. 2014.
Opioid-related deaths continue to rise.

**National Overdose Deaths**

Number of Deaths from Rx Opioid Pain Relievers

Source: National Center for Health Statistics, CDC Wonder
General Principles: Pain Management in Radiation Oncology

- **Differential Diagnosis:** Is this an expected side effect responding as anticipated to usual management?
- **Local and systemic treatments**
- **Adjuvants?**
  - Infectious etiology? Fungal, bacterial, etc.
  - Neuropathic component to the pain?
    - Consider gabapentin, pregabalin, imipramine, etc.
  - Inflammatory component to the pain?
    - Consider maximizing NSAIDs
  - Excess irritation (secretions, reflux, diarrhea, urinary frequency, constipation, etc.)
    - Consider aggressive management of other symptoms
- **Incident versus Breakthrough pain**
Differential Diagnosis of Pain

- **Somatic Nociceptive pain**
  - Bone mets, wound, mucositis
  - Site-specific, related to tissue damage, achy, stabbing, throbbing, squeezing, tenderness

- **Visceral nociceptive pain**
  - Liver mets, bowel obstruction, coronary ischemia, urinary retention
  - Vague, difficult to locate; sharp, stabbing, squeezing, crampy

- **Neuropathic pain**
  - Cord compression, radiculopathy, peripheral neuropathy, post-mastectomy/post-thoracotomy pain, phantom limb pain
  - Burning, shooting, tingling, numb
  - Consider adding gabapentin, pregabalin, imipramine, etc.

- If symptom falls beyond that which is anticipated based on radiotherapy, chemotherapy, prior surgery, current cancer status:
  - Review the radiation plan
  - Review chemotherapy plan
  - Is further workup needed based on history and exam?
  - Are you the best person to do the workup or should the patient be referred to PCP or another provider?
The WHO Cancer Pain Ladder

1. Pain Persisting or Increasing
   - Nonopioid ± Adjuvant

2. Pain Persisting or Increasing
   - Opioid for Mild to Moderate Pain
     ± Nonopioid ± Adjuvant

3. Freedom from Cancer Pain
   - Opioid for Moderate to Severe Pain
     ± Nonopioid ± Adjuvant

Miguel, R. Cancer Control 2000.
Non-Opioids Analgesics

- **Adjuvant* Analgesics & Co-Analgesics**
  - Acetaminophen
  - NSAIDs
  - Topical Agents
  - Anti-Spasmodics
  - Corticosteroids
  - Bisphosphonates/RANK-L Inhibitors
  - Neuropathic Agents

*Drugs with other indications that may be used as analgesics

- **Neuropathic pain**
  - Most common post-treatment pain syndrome
    - Chemotherapy Induced Peripheral Neuropathy (CIPN)
    - Post-thoracotomy/ Tumor involvement of Chest Wall
    - Brachial/Lumbosacral plexopathies
    - Post-Herpetic Neuralgia
  - Anti-depressants: TCAs, Duloxetine (Cymbalta)
  - Anti-epileptics: Gabapentin (Neurontin), Pregabalin (Lyrica)
Principles of Opioid Prescribing

- Derived from opium, from juice of poppy Papaver Somniferum
- Bind to mu, delta, and kappa opioid receptors
- Main effects are in dorsal horn of spinal cord
- Mainstay of moderate to severe cancer pain
  - Drug selection
  - Dosing to optimize effects

- Treating side effects
  - Constipation will not wane with time: ALWAYS PRESCRIBE A BOWEL REGIMEN
  - Nausea, fatigue, other side effects will wane with tolerance (time)
Drug Factors influencing opioid selection

Drug Factors

- Pharmacokinetics
  - Half-life (short v long acting opioids)
  - Lipophilic (fentanyl/methadone) vs hydrophilic
  - Presence of active metabolites
  - Non-opioid receptor mediated effects

- Routes of administration
  - Pill, liquid, IV, transmucosal, transdermal, etc.

Patient Factors

- Preference and past experience
- Organ function (hepatic failure, renal failure)
- Presence of cachexia (transdermal fentanyl)
- Tolerance/cross-tolerance
- Presence of neuropathic pain
Opioids come in short and long acting forms

SHORT ACTING OPIOIDS

- Morphine, oxycodone, hydromorphone, oxymorphone, fentanyl (trans-mucosal)

LONG ACTING OPIOIDS

- Extended Release
  - Morphine, Oxycodone, Hydromorphone, Oxymorphone, Hydrocodone, Fentanyl (Transdermal Patch), combination products

- Inherently Long Acting
  - Methadone, Levorphanol

REMS: Risk Evaluation and Mitigation Strategy
- Education, Counseling, patient counseling document

http://www.er-la-opioidrems.com/
Opioid Dosing Guidelines

- **Use Short-acting agents for:**
  - Opioid naïve patient
  - Dose finding total daily opioid dose
  - Premedication prior to “Incident Pain”

- **Add “basal agent” (long-acting opioid) in dose equal to 50-100% of 24 hour dose of PRN opioid consumed**

- **Continue PRN opioid in dose equal to 10-15% of the 24 hour dose of long-acting opioid**
Opioid Dosing Guidelines

- If >3-4 doses of PRN opioid if used in 24hrs → adjust long-acting opioid (increase again by 50-100% of 24 hour dose of PRN opioid used; generally no more freq than q48-72hrs)

- Continued evaluation & titration is critical to successful therapy

- Increase dose until pain relief is adequate OR intolerable and unmanageable side effects occur
## Opioid Conversions

### Equianalgesic opioids

<table>
<thead>
<tr>
<th></th>
<th>PO/PR</th>
<th>IV/SQ</th>
<th>Factor (PO:IV)</th>
<th>Duration of action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>30</td>
<td>10</td>
<td>3</td>
<td>3-4 h</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>7.5</td>
<td>1.5</td>
<td>5</td>
<td>2-3 h</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>15-20</td>
<td>-</td>
<td>-</td>
<td>3-5 h</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>30-45</td>
<td>-</td>
<td>-</td>
<td>3-5 h</td>
</tr>
<tr>
<td>Oxymorphone</td>
<td>10</td>
<td>1</td>
<td>10</td>
<td>3-6 h</td>
</tr>
<tr>
<td>Codeine</td>
<td>200</td>
<td>-</td>
<td>-</td>
<td>3-4 h</td>
</tr>
</tbody>
</table>

* When converting, need to account for incomplete cross tolerance (subtract 30-50% of direct conversion for incomplete cross tolerance)

** Fentanyl and Methadone do not convert as easily (more on next slide)

*** ER/LA opioid REMS should be completed when prescribing long-acting opioids

Adapted from NCCN Pain Management guidelines v2.2014. [www.nccn.org](http://www.nccn.org)
Other helpful tips for LA-opioids

Methadone

- Inexpensive and available as pill or liquid
- Inherently long-acting makes titration complicated
- Conversion factor depends on total daily opioid dose
- Many drug interactions (long QTc)

- Refer to experienced pain management clinician

Trans-Dermal (TD) Fentanyl

- Can be useful when PO pills not possible
- Requires fat pad for absorption (not for use in cachectic patients)
- Absorption is temperature sensitive (placement on body)

- 12+ hours to full effect, change q72h
Risk Evaluation and Mitigation Strategies

✧ Trans-mucosal Immediate Release Fentanyl REMS

- TIRF-REMS, [https://www.tirfremsaccess.com/](https://www.tirfremsaccess.com/)
- REQUIRED educational program prior to prescription of TIRF products
- REQUIRED patient/provider agreement any time prescribed

- Direct conversions from other opioids (including among TIRF products) is not possible
- Designed for patients >18 years old with cancer related pain on minimum 60 mg daily morphine equivalents for at least one week

- Could potentially be useful for patients with pain at time of simulation who have incident pain while lying flat

Supportive Oncology

SYMPTOM MANAGEMENT

Radiation induced pain flare
Pain Flare: A real phenomenon

- A minimum two-point increase from baseline pain in the pain scale of 0–10 with no decrease in analgesic intake; or
- A minimum 25% increase in analgesic intake employing daily oral morphine equivalent with no decrease in pain score.
- EBRT incidence ranges from 2% to 44%, but small numbers
- Pain flare generally occurs from 1-5 days post-RT
- No difference between dose-fractionation schemes
- Higher rates with SBRT – up to 2/3 of patients

Hird et al. IJROBP. 2009.
Pain Flare: Counseling or Prophylaxis

- **Chow et al. 2007** – pilot study, dexamethasone 8 mg before RT
  - 33 patients, 10/33 experienced pain flare in 10 day follow-up
  - Conclusion: Dex may be effective in preventing pain flare, but half-life of 36-54h means need more dex

<table>
<thead>
<tr>
<th># patients</th>
<th>Days of pain flare</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Day 3</td>
</tr>
<tr>
<td>3</td>
<td>Day 7</td>
</tr>
<tr>
<td>1</td>
<td>Days 2-4</td>
</tr>
<tr>
<td>1</td>
<td>Days 4-6</td>
</tr>
<tr>
<td>1</td>
<td>Days 3-8</td>
</tr>
<tr>
<td>2</td>
<td>Overall pain progression</td>
</tr>
</tbody>
</table>

- **Hird et al. 2009** – phase II study of dexamethasone 8 mg day of RT and subsequent 3 days
  - 9/41 (22%) of evaluable patients had pain flare, 6 of the 9 had flare on day 5, others on day 1, 2, 4, 6, 8 (some pts had >1 pain flare)
  - Dexamethasone appears to be effective in lessening pain flare


Ongoing studies of pain flare

- **Dexamethasone vs Placebo in the Prophylaxis of Radiation-Induced Pain Flare Following Palliative Radiotherapy for Bone Metastases**
  - NCT01248585
  - Completed accrual
  - Dexamethasone 8 mg daily x 5 days vs placebo daily x 5 days
  - Primary outcome is incidence of pain flare
  - Secondary outcomes include changes in pain scores, analgesic use, Quality of Life and correlative biologic studies

- **Dexamethasone for Pain Flare After Radiotherapy of Painful Bone metastases**
  - NCT01669499
  - Completed accrual
  - Placebo x 4 days vs dexamethasone 8 mg x 1 day + placebo x 3 days vs dexamethasone 8 mg x 4 days
  - Primary outcome is occurrence of pain flare
  - Secondary outcomes include pain scores, QOL, side effects
Pain Flare: Counseling or Prophylaxis

- Yousef et al. 2014 – methylprednisolone 5 mg/kg vs placebo
  - 120 patients with vertebral body metastases
  - All received 30 Gy in 10 fractions
  - Incidence of pain flare 6.6% with methylprednisolone versus 20% with placebo

- Take-home points on pain flare
  - Real phenomenon with patient impact
  - Incidence likely 20-40%
  - Counseling is important
  - Ongoing studies to understand prophylaxis
  - (I generally discuss dexamethasone with all of my patients)
Supportive Oncology

SYMPTOM MANAGEMENT

Nausea and Vomiting
## Differential diagnosis of N/V

<table>
<thead>
<tr>
<th>Chemical/Metabolic</th>
<th>CNS/Cognitive</th>
<th>Abdominal/Visceral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemotherapy Related</td>
<td>Brain Mets/Increased ICP:</td>
<td>GERD/PUD:</td>
</tr>
<tr>
<td>- <em>Multiple mechanisms</em></td>
<td>- Inflammation/Cytokine, Histamine</td>
<td>- <em>Mucosal Irritation, Vagal Input</em></td>
</tr>
<tr>
<td>XRT Related</td>
<td>Vestibular:</td>
<td>Constipation</td>
</tr>
<tr>
<td>- <em>Serotonergic</em></td>
<td>- <em>Ach, Histamine</em></td>
<td>Dysmotility</td>
</tr>
<tr>
<td>“Toxin” Opioid/Med/Infection</td>
<td>Anxiety/Anticipatory Nausea:</td>
<td>Ileus</td>
</tr>
<tr>
<td>- <em>Dopamine mediated</em></td>
<td>- <em>Cortical effect</em></td>
<td>Malignant Bowel Obstruction</td>
</tr>
<tr>
<td>Electrolyte Imbalances (Ca++, Uremia)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
VOMIT: Etiologies of nausea and vomiting

- **Vestibular**
  - Receptors Involved - Cholinergic, Histaminic
  - Drug Class Useful - Anticholinergic, Antihistaminic
  - Drug Examples - Scopolamine patch, Promethazine

- **Obstruction** of Bowel by Constipation
  - Receptors Involved - Cholinergic, Histaminic, likely 5HT3
  - Drug Class Useful - Stimulate myenteric plexus
  - Drug Examples - Senna products

- **DysMotility** of upper gut
  - Receptors Involved - Cholinergic, Histaminic, 5HT3, 5HT4
  - Drug Class Useful - Prokinetics which stimulate 5HT4 receptors
  - Drug Examples - Metoclopramide

- **Infection, Inflammation**
  - Receptors Involved - Cholinergic, Histaminic, 5HT3, Neurokinin 1
  - Drug Class Useful - Anticholinergic, Antihistaminic, 5HT3 antagonists, Neurokinin 1 antagonists
  - Drug Examples – Promethazine (e.g. for labyrinthitis), Prochlorperazine

- **Toxins** stimulating the chemoreceptor trigger-zone in the brain such as opioids
  - Receptors Involved - Dopamine 2, 5HT3
  - Drug Class Useful - Antidopaminergic, 5HT3 Antagonists
  - Drug Examples - Prochlorperazine, Haloperidol, Ondansetron
Essential pathways in N/V

Krakauer et al. NEJM. 2005.
Radiation-Induced Nausea/Vomiting (RINV)

- When combined with chemotherapy, utilize chemotherapy emetogenic potential to formulate anti-emetic plan

- RINV can be anticipated and prevented
  - Start by targeting 5HT3 receptor
    - If no relief, consider other mechanisms: excessive acid, mucous production, blood, inflammation
      - Consider adding H2 blocker, PPI, etc.
    - If still having nausea/vomiting on standing 5HT3 receptor, consider adding dexamethasone
    - If still with nausea/vomiting, return to differential diagnosis: if still no other etiology, consider targeting different receptor (often D2 receptor)

# Radiation Induced N/V Guidelines

<table>
<thead>
<tr>
<th><strong>NCCN</strong></th>
<th><strong>MASCC</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Risk</strong></td>
<td><strong>High Risk</strong></td>
</tr>
<tr>
<td>- TBI – 5HT3 +/- dex</td>
<td>- TBI, TNI – 5HT3 + dex</td>
</tr>
<tr>
<td><strong>Moderate Risk</strong></td>
<td><strong>Moderate Risk</strong></td>
</tr>
<tr>
<td>- Upper abdomen – 5HT3</td>
<td>- Abdomen, UBI, HBI – 5HT3 +/- dex</td>
</tr>
<tr>
<td><strong>Low Risk</strong></td>
<td><strong>Low Risk</strong></td>
</tr>
<tr>
<td>- All other RT sites – No PPX or 5HT3</td>
<td>- Cranium, CSI, H&amp;N, lower thorax, pelvis – No PPX, 5HT3 rescue</td>
</tr>
<tr>
<td><strong>Chemoradiation</strong></td>
<td><strong>Minimal Risk</strong></td>
</tr>
<tr>
<td>- Based on emetic risk of chemotherapy</td>
<td>- Extremities, breast – No PPX, 5HT3 or Dopamine rescue</td>
</tr>
</tbody>
</table>

FAST FACTS – an easy, helpful resource

- Center to Advance Palliative Care now hosting “Fast Facts” that compiles evidence-based information on palliative care
- Short (few paragraph) approach with references for more information

- Examples:
  - “Which opioid should I select for patients with advanced liver disease?”
  - “What are the receptors involved in nausea and vomiting caused by CNS inflammation?”
  - “How do I determine whether a patient has capacity to sign informed consent?”

https://www.capc.org/fast-facts/
Palliative Radiotherapy

A TAILORED APPROACH TO PALLIATIVE RADIOTHERAPY

- Radiotherapy and hospice
- Bone metastases
- Brain metastases
- Advanced disease in the lung
- Bleeding and other symptoms
This is Dr. Thompson—He'll be making you fit into your suit today.
“In a “curable” situation, radiation therapy is radical treatment and a modest complication rate is licensed. In the event of failure, palliation often is a begrudgingly accepted bonus. Such unscheduled palliation is not the issue here. When the initial objective of radiation therapy is palliation, new ground rules must be applied. Possible serious complications or even slowly self-limiting side effects of treatment are no longer acceptable. Overall treatment time must be short. Cost must be minimized. Convenience of treatment must be considered.”

- JAMA, 1964
Questions fundamental to palliative RT

♦ The most important question:

To treat or not to treat?
(based on previous discussions about goals, priorities, prognosis…)

♦ Other questions if treatment is appropriate:

What dose/fractionation scheme should be utilized?
What technique should be utilized?
Goals of palliative radiotherapy are constant:
- Rapid and durable symptom relief
- Minimize side effects
- Minimize treatment time

Dichotomy of palliative radiation therapy
- Tumor effect (and possibly durability) is related to dose
- Palliative effect not closely tied to dose

Thus an important question arises:

Is local tumor control important for palliation for any given patient?
Signs versus Symptom-based palliative RT

- Concept developed by van Oorschot and colleagues
- Principle is to tailor palliative radiotherapy to patient based on signs and symptoms of progressive cancer

Palliation of “symptoms” of progression
Aims may be:
• No overall effect on disease
• Alleviation of symptoms/distress
• Neither hastening nor postponing death
• Side effects unacceptable

Consider single (or few fractions)
Consider 2D/3D treatment

Palliation of “signs” of progression
Aims may be:
• Local control
• Prevention of symptoms
• Prolongation of life
• Some side effects tolerated

Consider higher BED
Consider more conformal treatment
### Factors affecting dose/fractionation

**Table 3** Factors suggestive of more aggressive radiotherapy, simple palliative radiotherapy or supportive care without radiotherapy

<table>
<thead>
<tr>
<th>Factors suggestive of a more aggressive approach (highly conformal or stereotactic treatment, or prolonged fractionation)</th>
<th>Factors suggestive of a less aggressive approach (less conformal treatment, short fractionation)</th>
<th>Factors suggestive of palliative care without radiotherapy intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prognosis likely &gt;6 months (see accompanying text)</td>
<td>Prognosis likely 1-6 months</td>
<td>Prognosis likely &lt;1 month</td>
</tr>
<tr>
<td>Good performance status (KPS ≥70)</td>
<td>Poor performance status (KPS &lt;70)</td>
<td>Very poor performance status/death imminent</td>
</tr>
<tr>
<td>Systemic disease well controlled</td>
<td>Large burden of systemic disease</td>
<td>Overwhelming burden of symptoms — radiotherapy affecting one symptom among many</td>
</tr>
<tr>
<td>Effective systemic treatments available*</td>
<td>Few or no proven effective systemic treatments available*</td>
<td>No effective systemic treatments available*</td>
</tr>
<tr>
<td>Large symptomatic tumor (less likely to respond to lower doses of radiotherapy)</td>
<td>Small symptomatic tumor (more likely to respond to lower doses of radiotherapy)</td>
<td></td>
</tr>
<tr>
<td>High likelihood of significant late side effects due to normal tissue exposure</td>
<td>Low likelihood of significant late side effects</td>
<td>High likelihood of acute side effects that the patient may not survive</td>
</tr>
<tr>
<td>High morbidity of possible recurrence</td>
<td>Low morbidity of possible recurrence</td>
<td>Retreatment in an area that would exceed critical normal tissue tolerance</td>
</tr>
<tr>
<td>High morbidity of retreatment</td>
<td>Low morbidity of retreatment</td>
<td></td>
</tr>
<tr>
<td>Few or no effective alternative palliative therapies</td>
<td>Range of effective alternative palliative therapies</td>
<td>If radiotherapy prohibits other effective palliative therapies (i.e., delay of referral to hospice)</td>
</tr>
</tbody>
</table>

* Effective systemic treatments may be based on the histology and biology of the primary cancer (i.e., metastatic hormone receptor positive metastatic breast cancer versus metastatic squamous cell carcinoma of the lung) and number and effect of prior treatment regimens; **, psychosocial issues (such as transportation issues, wanting to live to experience a specific event, wanting to spend time with family, etc.) that emerge in conversations with patients and family may cross categories in either direction.

---

Palliative XRT in last 30 days of life is often multi-fraction

♦ SEER-Medicare study (2013)
  • Evaluated use and cost of XRT among 200,000 patients who died from lung, breast, prostate, colorectal, pancreatic cancer 2001-2007 (not all necessarily palliative)
  • 7.6% of patients received XRT in last 30 days of life
  • Of those, 17.8% received >10 days of treatment
  • Radiation site not determined

  • Radiotherapy use in last 30 days of life decreased from 2001-2007
  • Hospice enrollment associated with decreased # of fractions and decreased total cost
Palliative XRT and hospice

**SEER-Medicare study (2014)**

- Evaluated use and cost of XRT among 7,000 patients who completed palliative XRT within 30 days of hospice enrollment
  - Median Length of XRT: 14 days
  - Median Length of Hospice Enrollment: 13 days
  - Radiation site not determined

![Graph A: Duration of radiation](image)

![Graph B: Number of radiation treatments](image)

Yeung H. JPSM. 2014.
# Barriers to palliative RT use in hospice

## ASTRO and NHPCO survey 2002

<table>
<thead>
<tr>
<th>What are the barriers?</th>
</tr>
</thead>
<tbody>
<tr>
<td>76% feel radiation oncologists resist single fx</td>
</tr>
<tr>
<td>Treatment length too long</td>
</tr>
<tr>
<td>Radiation oncology expense</td>
</tr>
<tr>
<td>Travel concerns</td>
</tr>
<tr>
<td>Concerns about life expectancy – is it worth it?</td>
</tr>
<tr>
<td>Patient and family reluctance</td>
</tr>
<tr>
<td>Poor communication with radiation oncologist</td>
</tr>
<tr>
<td>Radiation is ineffective</td>
</tr>
</tbody>
</table>

## VCU survey 2011-2012

<table>
<thead>
<tr>
<th>What is the #1 barrier?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation (cost, availability)</td>
</tr>
<tr>
<td>Number of treatments</td>
</tr>
<tr>
<td>Access (more doctors, appts)</td>
</tr>
<tr>
<td>Patient frailty</td>
</tr>
<tr>
<td>Treatment early enough for benefit?</td>
</tr>
<tr>
<td>Clinician inexperience</td>
</tr>
<tr>
<td>False hope</td>
</tr>
<tr>
<td>Poor communication</td>
</tr>
<tr>
<td>Side effects</td>
</tr>
<tr>
<td>Resistance to single fraction</td>
</tr>
</tbody>
</table>

---

Clinic Offering Affordable Radiation Therapy to Increase Access to Care for Patients Enrolled in Hospice

- VCU program: 18 month trial
- Designed to allow triage, consultation, simulation and treatment with single fraction all within 4 hour visit at affordable cost (flat rate $400)
- 8 patients referred
  - 2 screened out at telephone screening
  - 2 underwent CT simulation, not candidates
  - 4 received palliative single fraction palliative RT

Schuster, JOP, 2014.
**ASTRO guidelines for palliative XRT**

- **Bone metastases:** Lutz, et al, IJROBP, 2011
  - Single fx and multi-fx equivalent for uncomplicated bone metastases
  - Single fx does not produce unacceptable rates of long-term toxicity
  - Surgery, vertebral augmentation do not obviate need for radiotherapy
  - Advanced techniques should be reserved for clinical trials

- **Brain metastases:** Tsao, et al. PRO, 2012
  - Multiple approaches including surgery, stereotactic radiotherapy, whole brain radiotherapy should be based on prognosis, histology, size and number of metastases
  - No routine role for use of concurrent chemotherapy, radiosensitizers
Palliative XRT for bone mets is effective

- **Systematic Review by Chow 2007, update 2012**
  - Complete response rate 23% vs 24% (single vs multi fraction)
  - Overall response rate 58% vs 59% (single vs multi fraction)
  - Stabilization of pain upward of ~80%
  - No significant differences in acute toxicity (some studies show worse acute toxicity with multi fraction)
  - Trends toward increased risk of pathological fracture and cord compression with fewer fractions, overall low numbers
  - 2.5x more retreatment in single fraction arm (generally decided by treating physician), 20% vs 8%

ASTRO Choosing Wisely Campaign #3:
“Don’t routinely use extended fractionation schemes (>10 fractions) for palliation of bone metastases.”

AAHPM Choosing Wisely campaign #4:
“Don’t recommend more than a single fraction of palliative radiation for an uncomplicated painful bone metastasis.”
Single fraction XRT remains underutilized

- Bekelman et al. JAMA 2013
  - SEER-Medicare patients with prostate cancer 2006 to 2009
  - 3.8% of patients without prior complicating events received single fraction XRT to bone

- Rutter, et al. IJROBP 2015
  - 9,000 patients in National Cancer Data Base treated with XRT to non-spine bone mets from prostate, breast, lung cancer
  - 4.7% received 8 Gy in one fraction, 95.3% received multi-fraction
  - Increased from 3.4% in 2007 to 7.5% in 2011
What about complicated bone metastases?

- Generally use longer dose/fractionation schemes
- Phase III data: Spinal cord compression
  - More complicated: local control clearly matters
  - Treatment informed by overall clinical trajectory, prognosis, histology, symptoms, patient goals/preferences
  - Good data for single fraction in patients with poor prognosis (<3 mo) (Marranzano. Radiother Oncol. 2009. Thiriot, ASTRO abstract 2014)

- Little data: Pathologic fracture
  - More bone remineralization after longer dose/fractionation
  - ?dose fractionation for post-op – no randomized data

- Reirradiation
  - Normal tissue tolerance
  - Chow 2014 Lancet Oncology: reirradiation well-tolerated and effective
  - Stereotactic RT?
What about patients with short life expectancy?

- Multiple sub-group analyses of large clinical trials demonstrate that palliative radiotherapy can be beneficial (up to 50% response rates) in patients living less than 12 weeks and even in patients living less than 4 weeks.
What about SBRT for bone mets?

- No completed RCTs compare conformal radiotherapy to stereotactic radiotherapy for bone mets
- Prospective and retrospective single institution series
  - Novel endpoints: local control
  - Improved pain relief
  - Higher cost
- Potential utility
  - Spine metastases
  - Oligometastatic disease
  - Reirradiation
- ASTRO guidelines for bone mets (2011)
  - Not for cord compression
  - Use in clinical trials
- Cost effectiveness analysis, Rutter, IJROBP 2015
  - Assuming 20% improvement in pain control: survival needs to be >11 months for QALY <$100,000
Multiple treatment modalities effective for brain metastases

- **ASTRO consensus guidelines (2012)**
  - Reviews evidence for surgery, stereotactic radiotherapy, whole brain radiotherapy, “best supportive care”

- **Multiple factors impact combinations of the various treatment approaches**
  - Data from randomized controlled trials
    - Survival
    - Brain control
    - Neurocognitive outcomes
  - Number of brain metastases
  - Prognosis
  - Patient preference
What is the role of WBRT for poor prognosis patients?

- **QUARTZ trial**: ongoing study in UK:

- **MRC randomized trial** evaluating quality of life after whole brain XRT for patients with inoperable brain metastases from NSCLC
  - Randomized to Optimal Supportive Care versus Optimal Supportive Care + WBRT 400 cGy x 5 fractions
  - Primary endpoint is quality adjusted life years

- **Accrual ongoing**
  - Interim results demonstrate no difference between OSC and OSC+WBRT
Palliative RT to lung: Prognosis driven approach

- ASTRO Guidelines, Palliative RT for advanced disease in the lung
  - Short course and long-course XRT produce equivalent symptom control
  - Modest survival benefit to longer dose-fractionation (30 Gy/10fx) for select patients
  - Minimal role for endobronchial brachytherapy or concurrent chemoRT

- Utilizing prognostic models from this talk (and other prognostic models), it is possible to consider different dose-fractionation schemes for patients with advanced cancer

<table>
<thead>
<tr>
<th>PROGNOSIS/CLINICAL CIRCUMSTANCE</th>
<th>TREATMENT OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prognosis &lt;1 mo</td>
<td>• Supportive care alone</td>
</tr>
<tr>
<td></td>
<td>• Short-course radiotherapy (ie, single 8-Gy fraction or 17 Gy in 2 fractions given one wk apart)</td>
</tr>
<tr>
<td>Prognosis &gt;1 mo</td>
<td>• Supportive care alone</td>
</tr>
<tr>
<td></td>
<td>• Short-course radiotherapy (ie, single 8-Gy fraction or 17 Gy in 2 fractions given one wk apart)</td>
</tr>
<tr>
<td></td>
<td>• Higher-dose radiotherapy (≥ 30 Gy in 10 fractions) with the goal of moderately increased survival at the cost of more acute side effects</td>
</tr>
<tr>
<td>Locally recurrent disease</td>
<td>• Supportive care alone</td>
</tr>
<tr>
<td></td>
<td>• Retreatment with external beam therapy, taking into account increased acute and long-term side effect risks due to cumulative dosing</td>
</tr>
<tr>
<td></td>
<td>• Brachytherapy for intraluminal obstruction by tumor</td>
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Potential adjuvant treatments include:
• Endobronchial stenting for obstructing lesions
• Chemotherapy given in sequential rather than concurrent time frame
• Narcotic analgesics to minimize the sense of air hunger or shortness of breath

What about bleeding?

- Palliative radiotherapy can be highly effective in decreasing or stopping bleeding from malignant skin wounds, malignancy in head and neck, lung, and throughout the GI tract
  - Generally only effective in stopping “oozing” rather than arterial bleeding
  - Can be accomplished quite quickly, may be able to palliate with single fraction

- Appropriate dose-fractionation?
  - May fall under “signs-based” or “symptom-based” radiotherapy
  - Consider “quad shot” for pelvis or head and neck (370 BID x 2 days, can repeat x2)
Future Directions

- **SPRO: Society for Palliative Radiation Oncology**
  - Formed 2014, international collaboration including members from ASTRO, CARO, ESTRO, RANCZR
  - Three subgroups:
    - Education
    - Research
    - Advocacy
  - Overall leadership under Steve Lutz, MD

- **Palliative Oncology Symposium**
  - Joint venture of ASTRO, ASCO, AAHPM, MASCC
  - First conference 10/14
  - Plan for annual meeting on education and research into integrating palliative care in oncology
SAVE THE DATE

PALLIATIVE CARE IN ONCOLOGY SYMPOSIUM

OCTOBER 9-10, 2015
Boston Marriott Copley Place
Boston, Massachusetts

pallonc.org
Conclusions

- Palliative care is a medical specialty that can provide assistance with symptom management and complex communication tasks for patients with advanced illness
- Palliative care differs from hospice care
- Early palliative care for patients with incurable cancer has been shown to improve quality of life and survival

- Symptom management, including anticipation of side effects of therapy, is fundamental for radiation oncology clinicians
- Multiple resources for continuing education exist for ongoing support in symptom management

- Palliative radiotherapy is a safe, effective treatment for various symptoms of advanced cancer
- A prognosis driven approach to palliative radiotherapy can tailor dose-fractionation to individual patients
Questions?

- Thank you for your attention.
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