

**FAST FACTS AND CONCEPTS #67  
RADIATION FOR PALLIATION – PART 2, 2<sup>ND</sup> EDITION**

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**Background** *Fast Fact* #66 discussed the physiology and methods of delivering radiation therapy (XRT). This *Fast Fact* reviews the common indications for and outcomes of palliative XRT.

**Decision Making** The most important decision when considering palliative XRT is to assess the balance between anticipated functional/symptomatic benefit versus time spent receiving therapy and acute toxicities. It is vital to review 1) the estimated prognosis, 2) current and anticipated best functional status outcome, 3) expected toxicities, and 4) treatment burden—time spent coming to XRT site, time off work for family, and cost.

**Bone Metastases** External beam therapy achieves pain relief in over 75% of patients with healing and reossification occurring in 65-85% of lytic lesions in non-fractured bone. Pain relief may begin within the first few treatments and peaks by 4 weeks following XRT completion. A standard radiation prescription in the US is 300 cGy x 10 fractions. However, data exist to support a single large fraction (800 cGy x 1) for extremity lesions, especially in patients with expected survival < 3 months. Surgical fixation prior to XRT is indicated for large lesions, when >50% of the cortex is replaced by tumor, or when fracture has occurred in a weight-bearing bone.

Radionuclide therapy with Strontium<sup>89</sup> or Samarium<sup>153</sup> is indicated for multiple sites of painful bone metastases (typically breast or prostate cancer). Peak analgesic effect occurs 3-6 weeks following treatment. Side effects are hematological with decreased blood counts in 10-30% of patients. Worsening of pain (a 'pain flare') may occur following administration and prior to pain relief. Radionuclide therapy can be combined with external beam radiation and can be given more than once.

**Epidural Metastases and Spinal Cord Compression** *External beam radiation* is the primary definitive treatment for epidural metastases with or without spinal cord compression, in conjunction with a short-course of steroids. The standard US prescription is 300 cGy x 10 fractions, although shorter courses can be used if needed (e.g. 400 cGy x 5). Results of treatment are directly related to the neurological status at the time treatment starts. Ambulatory patients at the start of treatment generally remain ambulatory, while non-ambulatory patients are unlikely to have return of weight-bearing function. Indications for surgery include no tissue diagnosis, spinal instability, bone fragments causing cord damage and progression during/after XRT.

**Brain Metastases** Whole-brain external beam radiation or – for small lesions – stereotactic radiosurgery (e.g. 'Gamma Knife'), can relieve symptoms and prolong survival. The standard US prescription is 300 cGy x 10 fractions; although shorter courses can be used (e.g. 400 cGy x 5). Surgery is indicated for good prognosis patients with a single accessible lesion or for refractory neurological symptoms (e.g. seizures).

**Other Indications** The following are all appropriate for consideration of palliative radiation:

- Obstruction: vascular (superior vena cava syndrome), esophagus, airway, rectum, biliary tract
- Pain: adrenal metastases causing flank pain, tumors causing nerve impingement
- Bleeding: stomach, esophagus, head/neck cancer, bladder, cervix
- Ulceration/fungation

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