



# Palliative Pearls

Brought to you by the JBMH Palliative Care Program

## RADIATION THERAPY FOR SYMPTOM PALLIATION IN CANCER

Radiation therapy is the use of high energy radiation directed at a localized area of cancer in the body, to kill tumour cells. In high doses, radiation destroys cells either directly or by interfering with cell reproduction. High-dose radiation alone can cure some cancers; however it is also often used with other treatment or therapies such as surgery or chemotherapy or hormone therapy. In incurable cancers, radiation can be used for palliation.

### What roles does radiation therapy play in palliation?

When a cure is not possible, palliative radiation can still be used to partially shrink a tumour mass and improve symptoms in the immediate area of the tumour (such as pain), thereby improving quality of life, and sometimes extending life. Any time a localized area of tumour is causing a significant symptom in the palliative setting, it is worth considering palliative radiotherapy to that area.

### What makes radiation therapy palliative as opposed to curative?

- When the goal of treatment is solely symptom relief
- Radiation treatment is administered using lower total doses, larger daily doses and shorter treatment courses than curative radiotherapy (usually 1, 5, or 10 treatments)

### Which symptoms are effectively relieved by radiotherapy?

- Treatment of painful bone metastases is the most common indication for palliative radiotherapy
- Breast, prostate and lung cancers are the most common tumours that metastasize to bone, but many others do also, including kidney cancer and myeloma
- Intrathoracic symptoms of lung cancer: pain, hemoptysis, breathlessness, vena caval obstruction
- In advanced pelvic malignancies: pain, bleeding, discharge, hydronephrosis, lymphoedema
- Obstruction and pain in advanced esophageal tumours and head and neck cancers may be improved with radiotherapy
- Neurologic symptoms from brain metastases and spinal cord compression

### How are doses of radiation determined?

- Fractionation schedules for palliative radiotherapy are based upon the performance status of the patient, the anatomic site affected, the radiosensitivity of the tumour, and data from the literature
- Most available data concerns the treatment of bone metastasis. All of the studies done confirm that the rates of pain relief are identical following either a single treatment or multiple fractions.

### Which cancer-related indications require emergency radiation therapy?

- Spinal cord compression
- Superior vena cava obstruction
- Uncontrolled bleeding (in pelvis, gastrointestinal track, lung)
- Lower airway obstruction
- Acute visual loss from tumour in orbital bones, or eye

### **What are commonly expected side effects of palliative radiotherapy?**

- Radiation side-effects are divided into acute effects (during the course of treatment and within several weeks) and long term effects (developing several months to years after treatment)
- Long term side effects are uncommon in palliative treatment because of lower radiation dose and shorter expected survival
- Side effects depend on the total radiation dose and how it is divided up, the sensitivity of the organs receiving radiation, prior treatment, and individual variation in sensitivity to radiation
- Fatigue is one of the most common complaints and improves with time
- Other side effects are specific to the part of the body receiving treatment e.g. skin erythema in the treatment area
- Nausea/vomiting/diarrhea after abdominal or pelvic treatment
- Temporary hair loss in the treated area
- Discomfort with swallowing if throat or central chest treated

### **What is known about the mechanism of action of radiotherapy?**

- Killing tumour cells which leads to a reduction in tumour volume
- Exact mechanism of pain relief may be secondary to decreased pressure on pain nerve fibers and a decrease in the neuropathic or nociceptive pain stimulus.

### **When is the best time to evaluate response to palliative radiotherapy?**

- It may take more than 4 weeks after treatment to achieve maximal pain relief
- The most appropriate time to measure response rates is 2 months
- Pain medication is essential while treatment is organized, delivered, and effective in relieving pain
- Ongoing assessment of pain/medications important as medications may need to be reduced as patient responds to treatment

### **What is “pain flare”, a potential side effect of radiotherapy to bone metastases?**

- It is a transient increase in bone pain immediately following the initiation of radiotherapy
- Literature suggests that between 10 and 44% of patients experience this phenomenon
- Requires breakthrough analgesic doses
- Dexamethasone may be helpful due to its anti-inflammatory effect and long half life

When one symptom such as pain is treated, other symptoms may be improved. Treating the pain can improve mood, appetite, sleep, bowel function, mobility, normal work and enjoyment of life.

### **References:**

[www.cancercare.on.ca](http://www.cancercare.on.ca)

[www.bccancer.bc.ca](http://www.bccancer.bc.ca)

World Health Organization. (2008). Radiation Therapy for Symptom Palliation in Cancer. *Cancer Pain Release*, 21(2 & 3).

**If you have any questions regarding this publication, please call  
Sue Clarkson at ext 5724, Idly Tettero at ext 5743 or Dr. Barbara Strang at ext 4103**