

Bone pain in oncology: practical experience with opioids

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Bone structure

Bone is made up of specialized cells interspersed in **extracellular matrix**.

The **specialized cells** include:

- **Osteogenic cells** – develop into osteoblasts;
- **Osteoblasts** – responsible for the synthesis of the extracellular matrix and develop into osteocytes;
- **Osteocytes** – responsible for maintenance of bone metabolism;
- **Osteoclasts** – responsible for the breakdown of the extracellular matrix;

The **extracellular matrix** includes:

- Mineral 50%;
- Collagen 25%;
- Water 25%;

Introduction

- Pain as a result of metastatic spread to bone is a significant clinical problem for patients, their care givers and health – care professionals.
- Bone pain can have a significant impact on physical, psychological and social functioning and overall quality of life.

Epidemiology

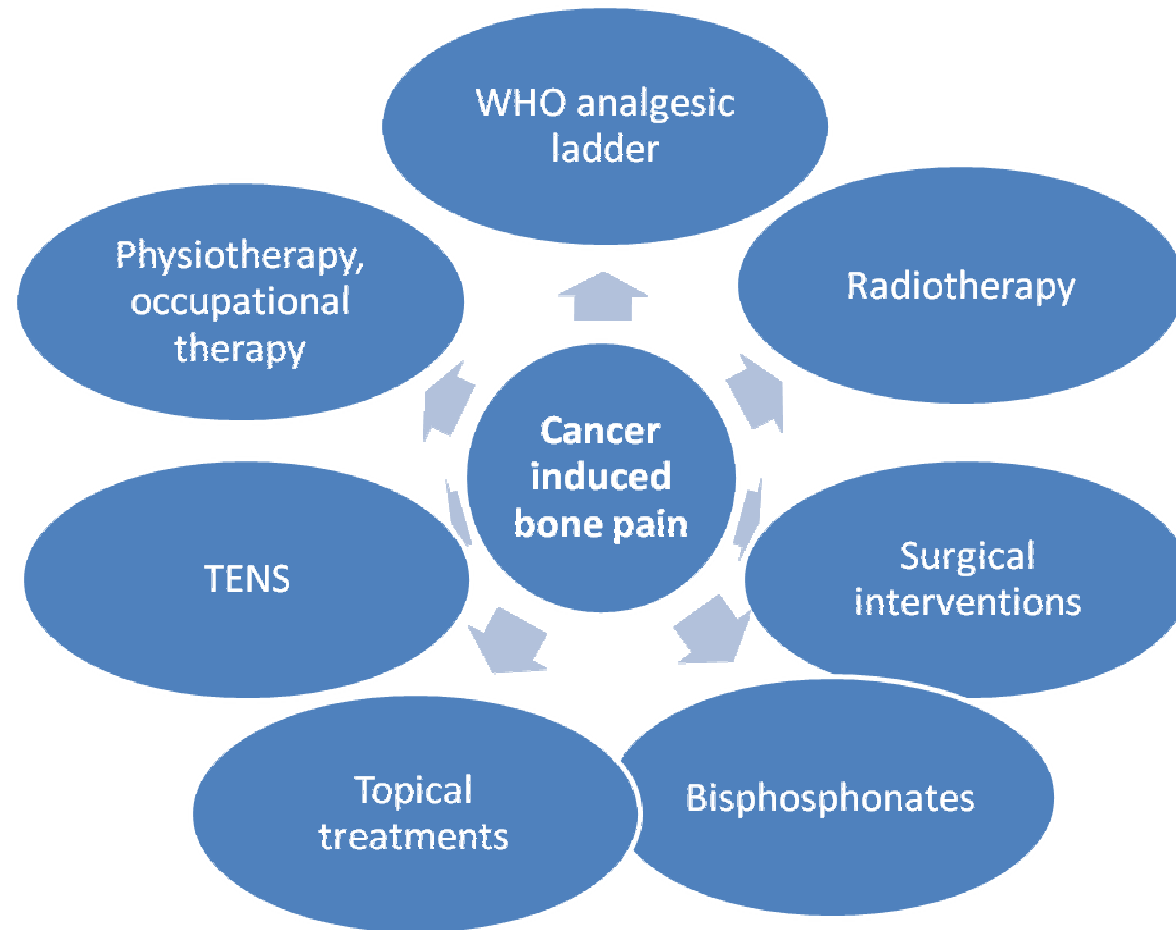
- Primary malignant tumors of the bone are extremely uncommon ~ 0,14%;
- In contrast, secondary (metastatic) tumors of the bone are very common.
- The bone is the third most common site of metastatic involvement (after the lung and the liver).
- Studies suggest that lesions in bone account for 30 – 35 per cent of all cancer pains in patients with advanced disease.

- Bone metastases are particularly common in patients with breast (47 – 85%), thyroid (28 – 60%), kidney (33 – 40%), lung (32 – 40%), myeloma.
- The most common local site of involvement is the lumbar vertebrae, then the thoracic vertebrae, then the cervical vertebrae, and then the sacrum.
- Patients can have both osteolytic and osteoblastic metastasis or mixed lesions containing both elements.

Clinical characteristics

- severe pain,
- pathologic fractures,
- life threatening hypercalcemia,
- spinal cord compression.

Multimodality approach

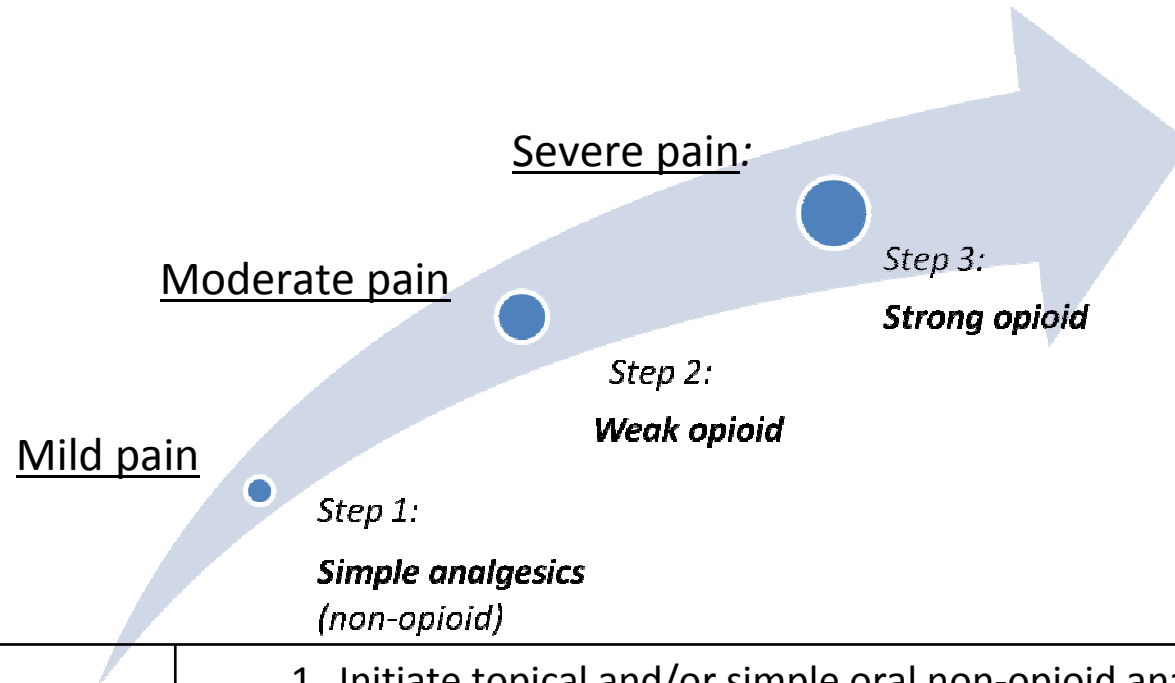


Treatment

The management of bone pain is highly individualized and may involve one or more of the following strategies:

- Treatment of the complications (e.g. nerve root compression, spinal cord compression);
- Treatment of the underlying cancer (radiotherapy);
- Treatment of underlying pathology (bisphosphonates and surgical stabilization of the relevant bone);
- **Symptomatic treatment of the background pain;**
- **Symptomatic treatment of any breakthrough pain;**

Treatment of the background pain



Step 1	<ol style="list-style-type: none"> 1. Initiate topical and/or simple oral non-opioid analgesics (e.g. paracetamol, NSAIDs) 2. ± adjuvant e.g. tricyclic antidepressants, anticonvulsants (pregabalin or gabapentin) for neuropathic pain.
Step 2	<ol style="list-style-type: none"> 1. Weak opioid (e.g. tramadol, codeine phosphate or dextropropoxyphene) 2. + adjuvant e.g. tricyclic antidepressants, anticonvulsants
Step 3	<ol style="list-style-type: none"> 1. Opioids (e.g. morphine, oxycodone) 2. + adjuvant e.g. tricyclics, anticonvulsants

Treatment of the background pain

- “By mouth” (if possible)
- “By the clock” drugs should be given regularly
- Use long acting or short acting medication
- Use opioids and non-opioid analgesics (reducing the doses of medication)

Treatment of the breakthrough pain

Use short acting medication