An overview of cancer pain management

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DEFINITION OF PAIN

• “Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.”

  – International Association for the Study of Pain
  – <www.iasp-pain.org>
Figure 1. From Fordyce (1976); Loeser (1982); and Waddell et al. (1993).
Learning objectives

• Understand the importance of cancer pain
• Be able to assess a patient with cancer pain
• Apply a basic treatment regime
• Acknowledge and find solutions to barriers to pain management
Cancer is common

- Worldwide over 10 million are diagnosed with cancer each year (50% in developing countries)
- 26,390 new cases were diagnosed with malignancy in HK in 2010
- 13,076 died from cancer in HK in 2010, accounting for 30.6% of all deaths in 2010.
- Aging population
Why is cancer pain important?

• 40% adult actively receiving cancer treatment have pain
• 75% of those with advanced malignant disease have pain
• 33% prevalence of pain in cancer survivors
  – 70% 5 year survival
  – Poorly studied and increasing population carrying a burden of pain
Consequences of unrelieved cancer pain

- Functional impairment, Immobility, Social isolation
- Emotional and spiritual distress
- Cessation of potentially curative therapies
- Negative impact on patient survival
- Patients express greater fear of dying in pain than dying
- Family and friends also suffer as they witness the pain
Degree of interference with daily life

BARRIERS TO PAIN MANAGEMENT
Barriers to optimal pain control: Patient, Drugs, HCW, System
Patient Barriers

• Fears relating to analgesic use
  – Addiction 76%
  – Side effects 67%*
  – Fear of injections 65%*
  – Tolerance 59%

• Beliefs that affect communication about pain
  – Disease Progression 71%
  – Distract the doctor 49%
  – “Be good” 46%
  – Fatalism 42%

  • * significant difference in BQ between pain <5 and >5 groups
Table 3. Beliefs and attitudes of family caregivers towards pain and pain management

• Addiction
  – There is a real danger of becoming addicted to pain relieving medication.
  – Pain medicine is very addictive.
  – People get addicted to pain relieving medication easily.

• Side-effects
  – Confusion from pain relieving medication is really a bother.
  – Nausea from pain relieving medication is really distressing.
  – Drowsiness from pain relieving medication is really a bother.
  – Pain relieving medication often makes you do embarrassing things.
  – Constipation from pain relieving medication is really upsetting.
  – It is easier to put up with pain than with the side-effects that come from pain relieving medication.

• Progression
  – Having pain means that the disease is getting worse.
  – The experience of pain is a sign that the illness has gotten worse.
  – Pain is a sign that the illness is worse.

• Tolerance
  – It’s a good idea to ‘save’ pain medication for later when you might really need it.
  – If you take pain-relieving medication when you have some pain then it might not work as well if the pain becomes worse.
  – Pain relieving medication should be ‘saved’ in case the pain gets worse.
Health care workers

• Opiophobia
  • Fear of addiction
  • Fear of side effects
  • Fear of tolerance

• Inadequate knowledge/ education

• Poor Assessment

• Anxiety about regulation of controlled substances
Health care system

• Strict regulatory environment
• Education institutions give little time to pain management in their curriculum
• Availability of drugs
MECHANISM OF PAIN
Cancer pain is different

- Cancer pain may be acute or chronic
  - 65% will develop transient increase in pain
  - most cancer pain is chronic
- Pain mechanism may be nociceptive or neuropathic
- Cancer pain is progressive
- Breakthrough or incident pain can be debilitating
Mechanism of pain

• Visceral pain
  – stretching, compression, infiltration of viscera and is quite common in cancer patients.

• Somatic pain
  – bony metastasis or surgery and is aching and more localized.

• Neuropathic pain
  – infiltration or compression by tumor and is burning or electric shock like in character.
Pathophysiology

• Local and systemic inflammatory response
• Cancer invading mechanically sensitive tissues or entrapment and injury of nerves
• Release of factors: endothelin, prostoglandins, tumor necrosis factor alpha, protons - sensitize peripheral nociceptors
• Maintained by central sensitization
• Proteolytic enzymes damage sensory and sympathetic nerve fibres – neuropathic pain
Pain is related to the type of cancer.

- Head and neck (67–91%)
- Prostate (56–94%)
- Uterine (30–90%)
- Genitourinary (58–90%)
- Breast (40–89%)
- Pancreatic (72–85%)
Cause of cancer pain

• The cancer itself 75-80%
• The treatment of cancer 15-19%
• Unrelated to the cancer 3-5%
• The debility of cancer
Cause of cancer pain

• The cancer itself 75-80%
  – Tumor involvement of bone
  – Tumor involvement of nervous tissue
  – Tumor involvement of viscera
  – Tumor involvement of blood vessels
• The treatment of cancer 15-19%
• Unrelated to the cancer 3-5%
• The debility of cancer
Bone Pain

- Most common cause of pain due to cancer
- Bone metastases occur in 30-70% of all pts with cancer
Vertebral Pain Syndromes

- Most common site of bone metastases
- Cervical: 10%
- Thoracic: 70%
- Lumbo-sacral: 20%
- Multiple sites common
- C1/2, C7/T1, T12/L1
Vertebral Pain Syndromes

- Complications:
  - Vertebral collapse (esp thoracic)
  - Radiculopathy: pain exacerbated by increased intraspinal pressure: coughing, sneezing, straining
  - Epidural spinal cord compression
Epidural spinal cord compression

- Catastrophic event for QOL
- ESCC occurs in 5-10% of cancers
- Solid tumors: extension from vert. body
- Lymphoma, paragangliomas, neuroblast: invasion through intervertebral foramina
- Rate of paralysis related to neurological status at diagnosis – early investigation
Incident pain - definition

- Intensity of pain significantly greater than background pain
- Intensity of incident pain is mod-sev
- Trigger is often known
- Onset is rapid with a peak effect in minutes
- Duration is transient less than 30 min
- Pain is intermittent
- Nociceptive, somatic, neuropathic, inflammatory
- Boney metastasis
Incident pain - Management

• Complete bio-pyscho-social history
• Enhance coping strategies e.g. occu - ADL
• Modification of disease process e.g. # fixation
• Management of reversible causes: cough/constipation
• Addressing psychological and spiritual issues
• Rapid onset opioids:
  – Transmucosal fentanyl citrate
Cause of cancer pain

• The cancer itself 75-80%
• The treatment of cancer 15-19%
  – Chemotherapy: peripheral neuropathy
  – Radiotherapy: plexopathy, pelvic pain
  – Postsurgical pain syndromes:
    – Anti-oestrogen related MSK pain
• Unrelated to the cancer 3-5%
• The debility of cancer
Post surgical pain

• Acute post op pain
• Post thoracotomy pain
  – Intercostal nerve: constant pain in area of numbness
• Post mastectomy pain
  – Intercostobrachial nerve – post. arm and axilla
• Post radical neck dissection
  – Burning pain
• Post amputation
  – Phantom limb pain
  – Stump pain and neuromas
ASSESSMENT
Assessment of pain

- Use appropriate tools: age and cognitive ability, language
- Medication: efficacy and adverse effects
- Functional assessment
- Psychosocial assessment – pt’s goals of care
- Pain diary
- Diagnostic evaluation only if it will contribute to the treatment plan
- Presence of other symptoms: fatigue, constipation, mood
Assessment of pain

• Pain intensity
  – Visual: VAS, faces scale
  – Numeric rating scale (0-10)
  – Verbal descriptor scale (nil, mild, mod, severe)

• Multidimensional instruments
  – Brief pain inventory

• Symptom assessment tools
  – Edmonton Symptom Assessment Scale

• * Reassessment at each contact
Non-communicative patient

- The Assessment of Discomfort in Dementia Protocol (ADD)
- Checklist of Nonverbal Pain Indicators (CNPI)
- The Pain Assessment in Advanced Dementia Scale (PAINAD)
- Behavioral Pain Scale (BPS) tested in adults and intensive care
- Critical-Care Pain Observation Tool (CPOT) tested in adults and intensive care
W.H.O. Recommendations

• 70% -90% of cancer pain can be controlled with oral medication
• Adequate pain relief >85% by World Health Organization’s analgesic ladder
• Recommended
  – given by mouth,
  – by the clock,
  – tailored to the individual patient
  – attention to details
Freedom from cancer pain

Pain persisting or increasing

Opioid for moderate to severe pain
+ Non-opioid
+ Adjuvant

Pain persisting or increasing

Opioid for mild to moderate pain
+ Non-opioid
+ Adjuvant

Non-opioid
+ Adjuvant

Pain
W.H.O. Step 2

• Step 2 of the WHO analgesic ladder for cancer pain is redundant. Discuss
  – HKCA Diploma in Pain Management 3.11.2008
W.H.O. Step 2

- Weak opioids (e.g., codeine, tramadol) can be used only if pain is moderate, because they have a maximum recommended dose after which the adverse effects increase more than the analgesic effect.

- About 10% of patients are unable to metabolize either codeine or tramadol to the active opioid metabolite (morphine or M1).
W.H.O. Step 2

- Full dose of paracetamol +/- NSAIDS equal analgesia to weak opioids
- Risk of overstaying in step 2 (opiophobia)
- Experience with the use of the WHO ladder has shown that the simple principle of escalating from non-opioid to strong opioid analgesics is safe and effective
W.H.O. step 3

- Strong opioids have a broader dose range.
- Opioid sensitive pain a greater effect can be achieved by increasing the dose.
- Long-acting opioids are used for stable or baseline pain.
- Fast- and short-acting opioids are used for breakthrough or incident pain when needed (via oral, transmucosal, or inhaled routes)
Management of pain in Opioid Naïve Patients

• **Severe Pain (7-10):**
  – Rapidly titrate short acting opioid
  – Begin bowel regimen

• **Moderate Pain (4-6):**
  – Titrate short acting opioid
  – Begin bowel regimen

• **Mild Pain (1-3):**
  – Consider titrating short acting opioid
  – Begin bowel regimen
National Comprehensive Cancer Network (NCCN)
Management of pain in Opioid Naïve Patients

• Anticipate and treat analgaesic side effects
• Consider adding adjunctive analgesics for specific pain syndromes
• Provide psychological support
• Provide patient and family/ caregiver education
• Optimize integrative interventions
• Consider acetaminophen (paracetamol) or NSAIDs
National Comprehensive Cancer Network (NCCN)
Management of pain in Opioid Naïve Patients

• Pain >4 (patient goals not met)
  – Oral: 5 – 15mg short acting morphine, reassess at 60min
  – IV or PCA: 2 – 5mg morphine, reassess at 15min

• Reassess:
  – Pain unchanged or increased – increase dose 50-100% (after 2-3 cycles consider IV titration)
  – Pain decreased 4-6 – repeat same dose
  – Pain decreased 0-3 – continue at current effective dose as needed over initial 24hrs
Failure of Step 3

• Approximately 20% of patients who do not respond to the standard WHO three-step analgesic ladder approach
• Such cancer pain can be broadly categorised
  – opioid irrelevant pain,
  – opioid partially responsive pain,
  – opioid unresponsive pain or
  – pain resulting from excess opioid.
Strategies to improve opioid responsiveness

• Open the therapeutic window (SE)
• Opioid rotation (Mu genotypes)
• Pharmacological techniques that reduce the systemic opioid requirement (Adjuncts)
• Non-pharmacological techniques that reduce the systemic opioid requirement
Step 4 – interventions

• The role of the pain specialist

• Neuro-ablation:
  – physical interruption of pain pathways either surgically, chemically or thermally.
  – Better in the early stages of cancer
  – Improved quality of life

• Neuromodulation:
  – dynamic and functional inhibition of pain pathways either by administration of opioids and other drugs intraspinally or intraventricularly or by stimulation.
Neuro-ablation

• Coeliac plexus block
  – 85% pancreatic and 73% of other abdominal malignancies
  – Ultrasound guided endoscopic 94%
• Superior hypogastric plexus block
• Ganglion Impar block
• Stellate ganglion block
• Percutaneous Vertebroplasty
• Presacral neurotomy
• Percutaneous cordotomy
Neuromodulation

- **Intrathecal pump**
  - Limited experience in HK due to cost
  - Indicated for opioid responsive pain requiring high oral doses or intractable side effects
  - Use of adjuncts:
    - Morphine
    - Hydromorphone
    - Fentanyl
    - Sufentanil
    - Bupivacaine
    - Clonidine
    - Ziconotide
    - Baclofen
    - Meperidine (pethidine)
SUMMARY
Summary

• Cancer pain is common
• Recognise pain ask at each contact
• Untreated pain has impacts on patient and family and society
• Early use of short acting opioids pain >4
• Multidisciplinary team
• Recognise your barriers to effective treatment
References


• Potter V., Wiseman E. Patient Barriers to optimal cancer pain control. Psycho-oncology. 12: 153-60


Resources

• International Association for the Study of Pain
  – http://www.iasp-pain.org

• National Comprehensive Cancer Network

• Hong Kong Cancer Registry
  – http://www3.ha.org.hk/cancereg/