An overview of cancer pain management

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Global Year Against Cancer Pain

OCTOBER 2008 – OCTOBER 2009

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>

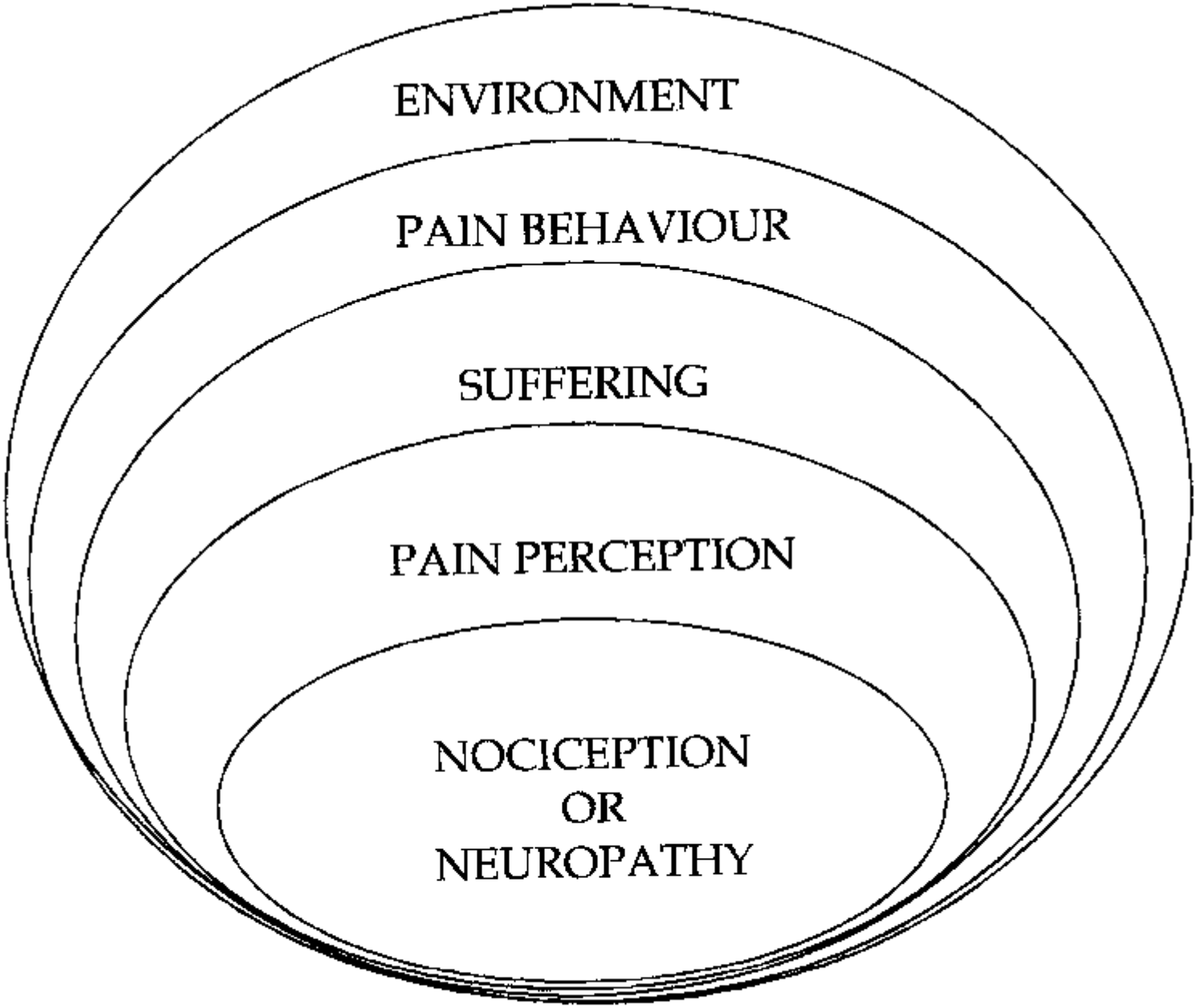


Figure 1. From Fordyce (1976); Loeser (1982); and Waddell et al. (1993).

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
  - HK Cancer Registry http://www3.ha.org.hk/cancereg/
- 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?

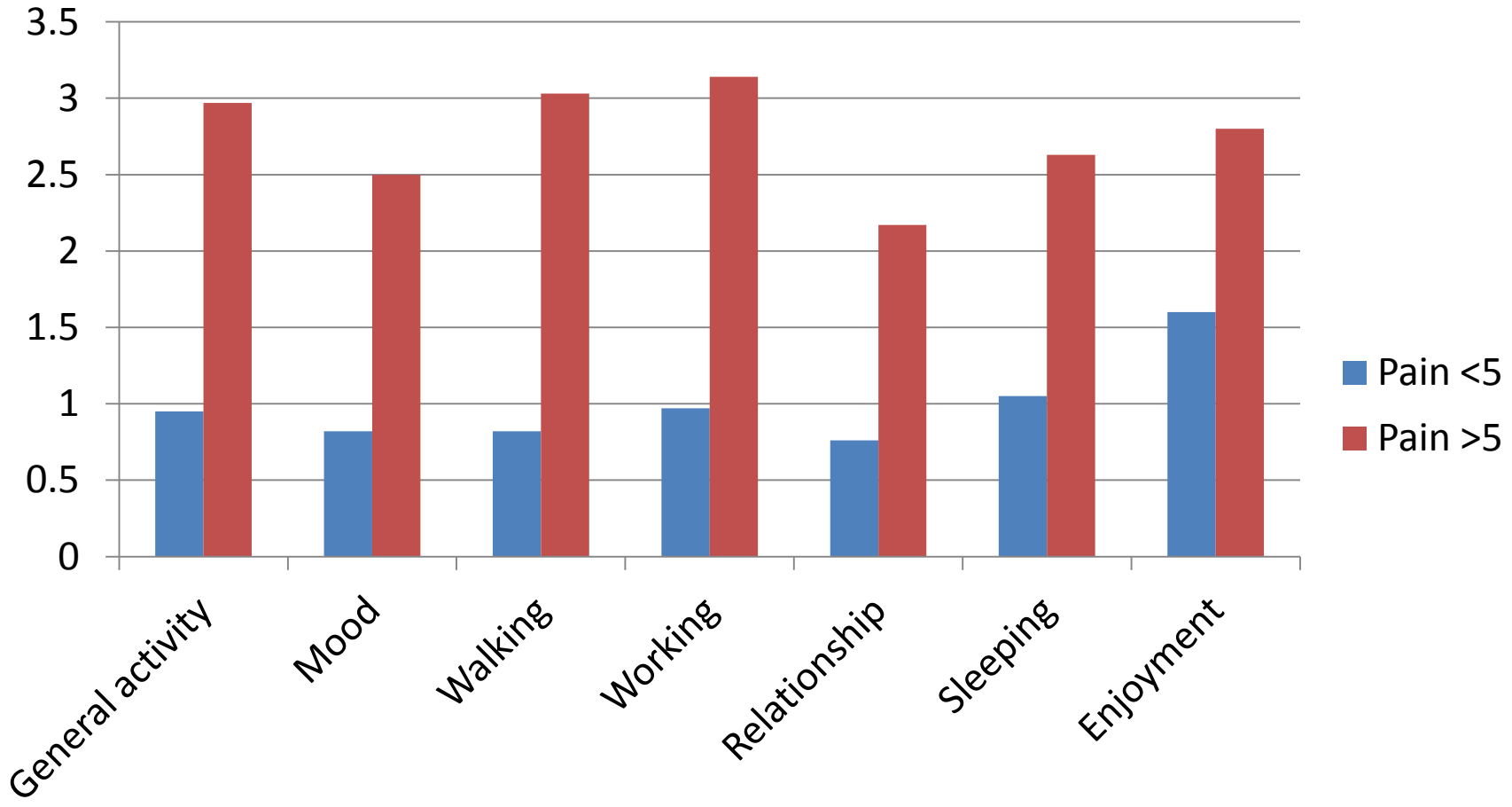
- 40% adult actively receiving cancer treatment have pain
- 75% of those with advanced malignant disease have pain
- 33% prevalence of pain in cancer survivors
  - 70% 5 year survival
  - Poorly studied and increasing population carrying a burden of pain

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

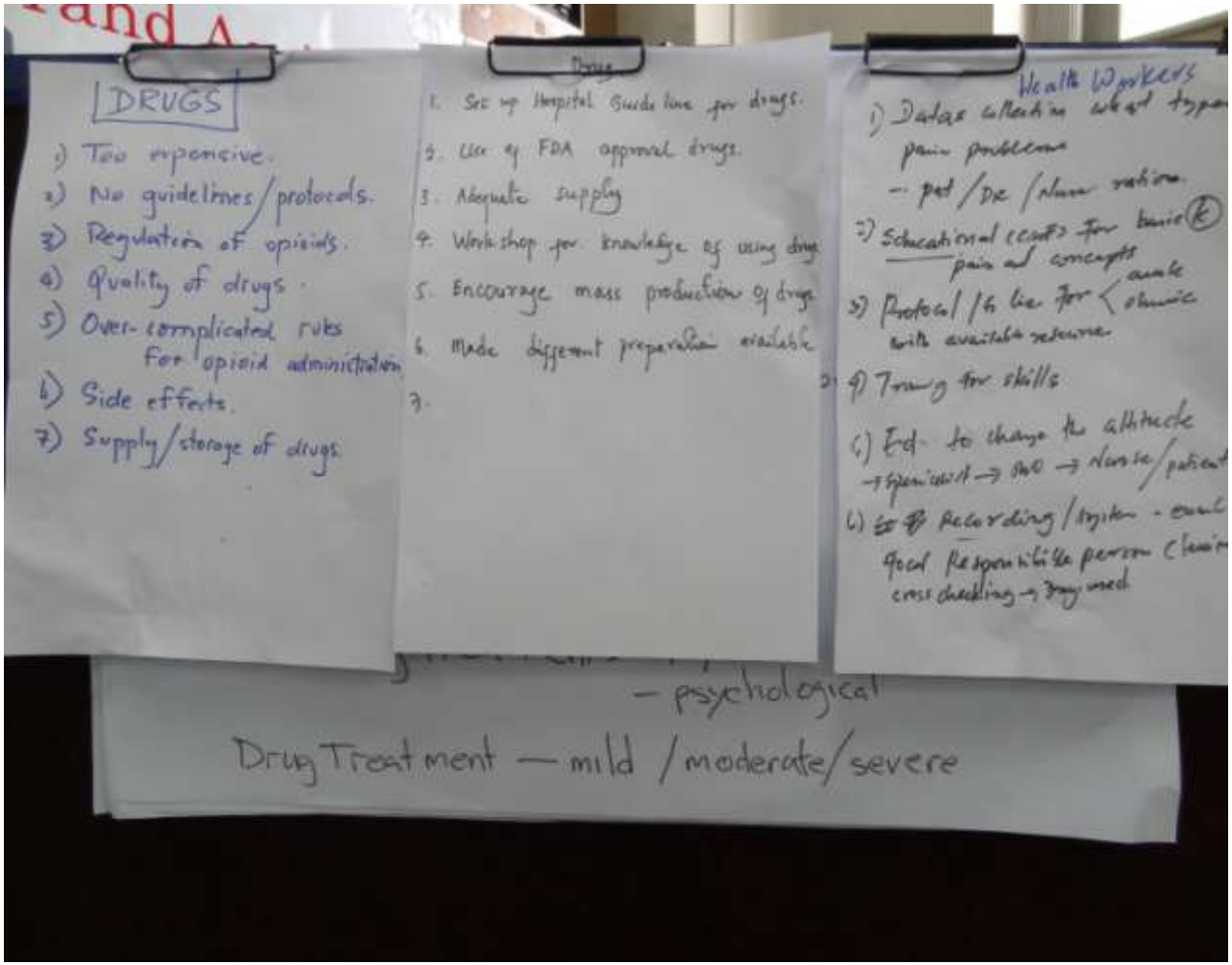
Potter V et al. Patient Barriers to optimal cancer pain control. Psycho-oncology. 12: 153-60



BARRIERS TO PAIN MANAGEMENT


PAIN TREATMENT CENTER
UPSA PAIN INSTITUTE
YANGON GENERAL HOSPITAL

Barriers to optimal pain control: Patient, Drugs, HCW, System



Patient Barriers

Potter V et al. Patient Barriers to optimal cancer pain control. Psycho-oncology. 12: 153-60

- 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%)
  - Valeberg BT, Rustoen T, Bjordal K, Hanestad BR, Paul S, Miaskowski C. Self-reported prevalence, etiology, and characteristics of pain in oncology outpatients. Eur J Pain 2008;12:582–90.

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

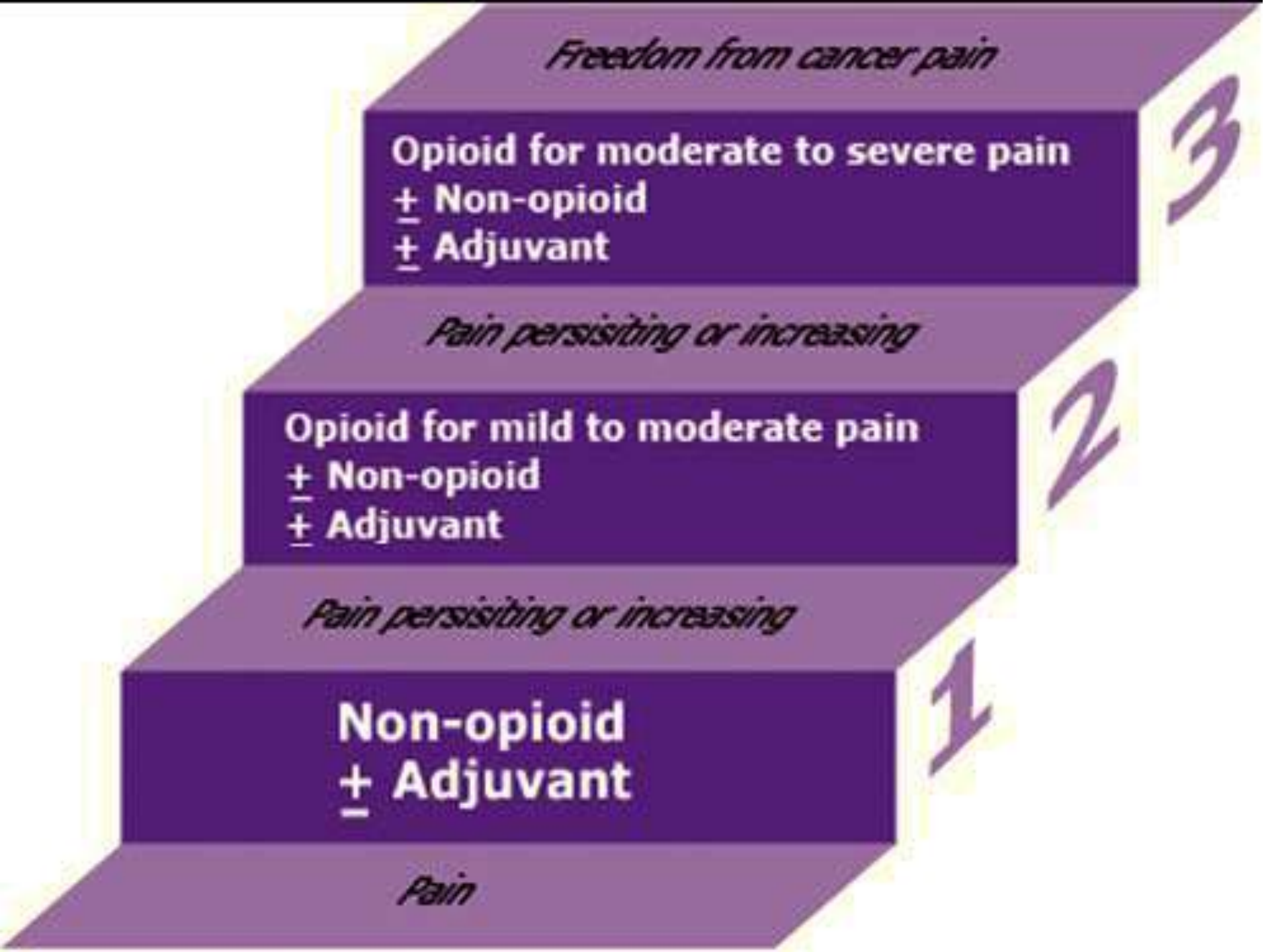
Non-communicative patient

- 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

TREATMENT

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
Opioid for moderate to severe pain
± Non-opioid
± Adjuvant
3
Pain persisting or increasing
Opioid for mild to moderate pain
± Non-opioid
± Adjuvant
2
Pain persisting or increasing
Non-opioid
± Adjuvant
1
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)

National Comprehensive Cancer Network (NCCN)

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

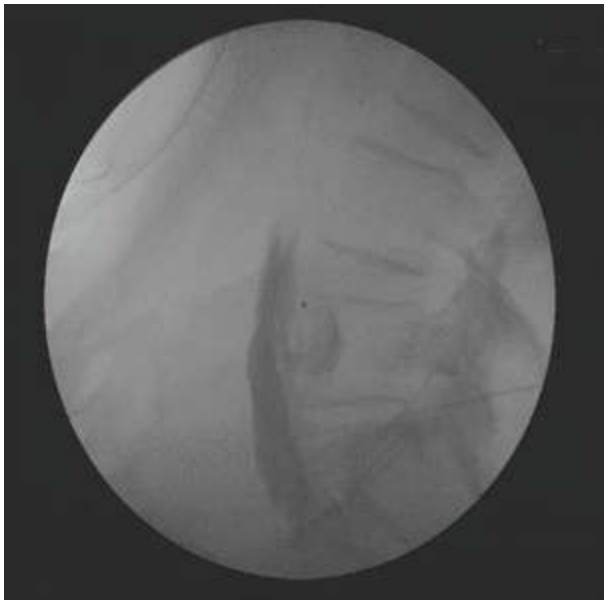
- Open the therapeutic window (SE)
- Opioid rotation (Mu genotypes)
- Pharmacological techniques that reduce the systemic opioid requirement (Adjuncts)
- Non-pharmacological techniques that reduce the systemic opioid requirement

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

- Valeberg BT, Rustoen T, Bjordal K, Hanestad BR, Paul S, Miaskowski C. Self-reported prevalence, etiology, and characteristics of pain in oncology outpatients. Eur J Pain 2008;12:582–90.
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- A reassessment of trends in the medical use and abuse of opioid analgesics and implications for diversion control: 1997-2002.*Gilson AM, Ryan KM, Joranson DE, Dahl JL. J Pain Symptom Manage. 2004 Aug; 28(2):176-88.*

Resources

- International Association for the Study of Pain
  - http://www.iasp-pain.org
- National Comprehensive Cancer Network
  - http://www.nccn.org/professionals/physician_gls/pdf/pain.pdf
- Hong Kong Cancer Registry
  - http://www3.ha.org.hk/cancereg/