CHRONIC AND CANCER PAIN MANAGEMENT

Children's Pain Management Clinic (CPMC) is ideally an inter-disciplinary service comprising a pain specialist, psychologist, physiotherapist, occupational therapist, and nurse coordinator.

Chronic Non-cancer Pain

Chronic pain refers to pain that outlasts the normal healing process and is officially defined as pain that lasts for more than 3 months. Diagnoses of patients who should be seen at the CPMC include recurrent headaches, recurrent abdominal pain, non-specific musculoskeletal pain, chest pain, rheumatologic conditions, neuropathic pain and persistent pain secondary to injury or disease.

New cases presenting to the CPMC are encouraged to attend with their family members, including both parents and their siblings to provide a holistic view of the child.

Children with chronic pain generally fall into 2 main categories – those with an identifiable source of pain (e.g. residual tumour, chemotherapy induced pain), and those with an as yet unidentified source of pain. The latter group will often have had multiple investigations and specialist consultations prior to their referral to the CPMC.

They also may have had seemingly innocuous triggers which precipitated or initiated their pain, and significant psychosocial factors that perpetuate and maintain their chronic pain. These children are often functionally impaired, i.e.sleep is disrupted, school absenteeism is significant and physical activity may be impaired or need modification. There may also be comorbid mood issues (depression, anxiety) which may be significant enough to warrant co-management with psychiatry.

Many of these children become labeled as "somatizers" and feel disbelieved. Their parents often become frustrated and helpless in the face of their child's long standing distress and dysfunction with seemingly little hope or remedy.

Management occasionally utilizes pharmacotherapy as a temporizing measure while the bulk of the therapy occurs with the psychologist, occupational therapist and physiotherapist. Opioids are not indicated in chronic non-cancer pain.

Cancer Pain

Children with cancer may have pain from

1. non-tumour pathology,
2. the tumour or its metastases and their complications (pain from bony metastases, pathological fractures, headache (raised intra-cranial pressure, metastases), back pain (bone invasion, spinal metastases), neuropathic pain (spinal invasion, plexus), visceral pain (intestinal or ureteral obstruction) and muscular pain)
3. therapy received for the tumour (chemotherapy, surgery, radiotherapy)
4. procedural pain (e.g. lumbar punctures, bone marrow aspiration).

Children with cancer may present to the Children's Pain Service with acute exacerbations of cancer pain. An *integrative approach* is adopted in management of cancer pain. This involves *pharmacological* and *non-pharmacological* methods. The severity of pain (pain scores), functional status, care needs, spiritual and existential needs and other symptoms e.g. neurological status should be considered as well.

A large part of cancer pain management is to debunk myths and misconceptions surrounding opioid use. Fears and anxiety of fear of addiction must be addressed to ensure compliance.

Some useful definitions:

- Abuse: Harmful use of a specific psychoactive substance
- Addiction: Continued use of a specific psychoactive substance despite physical, psychological or social harm; a psychological dependence
- Dependence: Physiological state of adaptation to a specific psychoactive substance characterized by the emergence of a withdrawal syndrome during abstinence, which may be relieved in total or in part by re-administration of the substance
- Tolerance: Occurs when a fixed dose of opioid produces decreasing analgesia so that a dose increase is required to maintain a stable effect

Side Effects of Opioid Analgesics

Common: Constipation, Nausea / Vomiting, Drowsiness, Dry Mouth, Sweats

Uncommon: Dysphoria / Delirium, Bad dreams, Hallucinations, Pruritus / Urticaria, Urinary retention, Myoclonic jerks/ Seizures, Respiratory depression

Withdrawal syndrome

Abrupt termination of patients receiving regular or continuous opioids for as few as 5 days or more may result in opioid withdrawal syndrome. Withdrawal begins with increasing irritability, restlessness, anxiety, insomnia, yawning, sweating, rhinorrhea, lacrimation; progressing to dilated pupils, gooseflesh, tremor, chills, anorexia, muscle cramps, nausea, vomiting, abdominal pain, agitation, fever, tachycardia.

Prevention / Management of withdrawal syndrome:

1. Avoid abrupt discontinuation of opioid
2. Assess any concurrent need for sedo-analgesia.
3. Taper opioids upon decision to discontinue. Gradually reduce opioids 10-20% daily, but more cautiously if the child has been on opioids for a significant amount of time.
4. Regular WAT-1 scoring (Withdrawal Assessment Tool) by the primary team will help to guide the rate of taper. In general, withdrawal symptoms are considered significant if WAT-1 ≥4, and no further taper should be performed that day.
5. There is usually a need for regular clonidine **and** a prn dose of opioids on standby to deal with withdrawal symptoms.

Conversion Table

There are multiple equianalgesic tables available online. There is a free Opioid Calculator app by the Faculty of Pain Medicine (FPM ANZCA) that is available for download on the iPhone and Android.

Guidelines for Opioid Use in Cancer Pain

1. Oral Morphine

Determine 24 hour IV morphine requirements while on the PCA, then convert to oral morphine equivalents (total daily IV dose x 3) and serve it in regular 4 hourly doses.

Maintenance drug therapy

- Preferably oral
- Children usually prefer syrup
- Older children can be given SR morphine tablets/caps
- Overlap the last dose of syrup morphine with the 1st dose of SR morphine. For children who are able to swallow SR morphine capsules, one may consider converting to SR morphine capsules so that caregiver does not have to administer frequent syrup doses (syrup morphine usually 4-6 hourly vs SR morphine 12 hourly); always ensure that patient is served the last dose of syrup morphine together with the 1st dose of SR morphine capsule so that there is analgesic coverage before onset of SR morphine
- Remember to order syrup morphine rescue

If child is unable to take orally or is non-compliant, consider:

- Subcut morphine
- 1/3 to ½ of total daily dose
- combine this with other drugs

2. Fentanyl Patch

- Comes in 12.5, 25 and 50 mcg patches
- Dose/patch size = total daily oral morphine / 2

- The onset of the patch is about 12-16 hours and peaks at about 24 hours. Therefore when putting the patch on, the lost dose of SR morphine must be served or 3 doses of syrup morphine 4 hourly, depending on what the patient was on before starting patch.

3. IV morphine
   Rescue dose is 1/6th to 1/10th of total daily dose.
   Weaning –reducing 20% per day and discontinuing after 5-10 days.

Useful Drugs Lists for Use in Cancer or Palliative Pain

Table 1: Non – Opioid Drugs

DRUG	DOSAGE
Paracetamol ^	10-15 mg/kg PO, q 4-6h, dose limit 1g/dose, 4g/day
Ibuprofen*	5-10 mg/kg PO, q6-8h, dose limit 400 mg/dose
Naproxen*	10-20 mg/kg/day PO, divided every 12h, dose limit 1g/day
Diclofenac*	1 mg/kg PO, q 8-12h dose limit 1g/day

^ lacks anti-inflammatory action, GI or haematological side effects
* Anti-inflammatory activity. Caution in hepatic or renal impairment.
Note: Increasing the dose of non-opioids beyond the recommended therapeutic level produces a ceiling effect, with no additional analgesia but major increases in toxicity and side effects.

*Table 2: Opioid Analgesics: Usual Starting Doses**

DRUG	EQUIANALGESIC DOSE (PARENTERAL)	STARTING DOSE (IV)	IV: PO RATIO	STARTING DOSE PO / TRANSDERMAL	DURATION OF ACTION
Morphine	10mg	Bolus dose = 0.05mg/kg - 0.1mg/kg every 2-4h Continuous infusion = 10 – 40 mcg/kg/h	1 : 3	0.15-0.3mg/kg/dose every 4h	3-4h
Codeine	120mg	Not recommended		1.0mg/kg every 4h (dose limit 1.5mg/kg/dose)	3-4h
Oxycodone	5-10mg	Not available in KKH		0.1-0.2 mg/kg every 3-4h	3-4h
Fentanyl	100µg	1-2µg/kg/h continuous infusion		25µg patch	72h (patch)
Morphine – sustained release				0.6mg/kg every 8h or 0.9mg/kg every 12h	

* Doses are for opioid naïve patients. For infants < 6 mo, start at ____ - 1/3 suggested dose and titrate to effect

[a] Avoid use in renal impairment. Metabolite may cause seizures

Table 3: Adjuvant Analgesic Drugs

DRUG CATEGORY	DRUG, DOSE	INDICATIONS
Antidepressants	Amitriptyline 0.2-0.5 mg/kg PO. Titrate upward by 0.25mg/ kg every 2-3 days Maintenance: 0.2-0.3mg/kg Alternatives: nortryptyline, doxepin, imipramine	Neuropathic pain (i.e. vincristine induced, radiation plexopathy, tumour invasion, Insomnia
Anticonvulsants	Gabapentin, 5mg/kg/dose PO. Titrate upward over 3 - 7 days. Maintenance: 15-50mg/kg/dose PO divided TID Carbamazepine 10mg /kg/d PO, divided OM or BD Maintenance: up to 20-30 mg/kg/d PO divided q8h	Neuropathic pain, esp shooting/ stabbing pain
Sedatives, Hypnotics, & Anxiolytics	Diazepam 0.025-0.2mg/kg PO every 6h Lorazepam 0.05mg/kg sublingual Midazolam 0.5mg/ kg/dose PO 15-30 min	Acute anxiety, muscle spasm. Premedication for painful procedures Seldom causes sedation at 1 mcg/kg, may require

	before procedure; 0.05mg/kg/dose IV Clonidine (PO/IV) 1-2mcg/kg/dose OD to QDS	45 minutes for onset, should not be stopped abruptly due to risk of rebound hypertension