CHRONIC AND CANCER PAIN MANAGEMENT

The Children's Pain Clinic is a multi-disciplinary service comprising pain specialist, psychologist, physiotherapist, occupational therapist, and nurse coordinator (acute and chronic pain)

Chronic Non-malignant 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. The prevalence of headache is reported to be 20% in preschoolers, increasing to 50% at 9 years and 70% in adolescents; recurrent abdominal pain is found to be present in between 10.8% and 36% of children, and 40% of children have back pain.

The Children's Pain Clinic (in Clinic K) is a full day clinic. At the clinic, patients are assessed by a pain specialist, psychologist and occupational and physiotherapists separately before a management plan is proposed. Apart from pharmacological treatment, the patients and their family will have pain education sessions, and patients are taught coping strategies. Any psychosocial problems will also be addressed and managed e.g. stress, bullying. Our psychologist often conducts family therapy sessions and she also works with schools.

Children often have *psychosocial* factors that precipitate or perpetuate chronic pain. These psychosocial reasons have to be determined, addressed and managed appropriately to prevent recurrent episodes of pain. The aim of the Pain Clinic is ensure that the children have minimal functional disability so that they continue to attend school, participate in social and physical activities and do not have sleep disturbance.

Diagnoses of patients seen at Pain Clinic include the following: recurrent headaches, recurrent abdominal pain, non-specific musculoskeletal pain, chest pain, rheumatologic conditions, neuropathic pain and persistent pain secondary to injury or disease.

Referrals

i. Outpatient referral

Referrals from the community are to be made by calling KKH central appointment. The Nurse Clinician for Children's Pain Service will be informed by Central Appointments; she will contact patient to arrange for a consultation at the Children's Pain Clinic. Outpatient referrals for KKH patients will also be directed to the Nurse Clinician.

ii. Inpatient referral

All inpatient referrals are to be faxed to Paediatric OT Reception (Ext +65-6394-2227) and ONE of the following persons MUST BE INFORMED OF THE REFERRAL:

a. Pain Consultant for the day
b. Nurse Clinician for Children's Pain Service
c. Consultant on-call

Cancer Pain

Children with cancer have pain from tumour itself, chemotherapy, surgery, radiotherapy and multiple procedures e.g. lumbar punctures, bone marrow aspirate. Children with terminal disease may have the following pains: bone metastases, fractures, headache (raised intra-cranial pressure, metastases), back pain (bone invasion, spinal metastases), neuropathic pain (spinal invasion, plexus), infection, visceral pain (intestinal or ureteral obstruction) and muscular pain.

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. Besides assessing the severity of pain (pain scores), functional status, care needs, spiritual needs and other symptoms e.g. neurological status should be looked into 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 opioids for 3 weeks 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.

Management of withdrawal syndrome:

1. Avoid abrupt discontinuation of opioid
2. Taper opioids upon decision to discontinue. Gradually reduce opioids by 20% every other day.

CONVERSION TABLE

	Intramusc (mg)	Oral	Dur(h)	Comments
Morphine	10	30	3 – 4	Ext 1st pass effect
Codeine	130	200	4 – 6	Very constipating
Fentanyl	0.1	0.5 – 1		Less constipating
Oxycodone	similar to morphine, but less constipating			

GUIDELINES FOR OPIOID USE IN CANCER PAIN

1. Oral Morphine

Determine requirements with:

- PCA
- Oral syrup morphine till comfortable; 2.5 – 5mg 4h

PCA – total daily opioid dose – convert to oral opioids (total daily IV dose x 3)

Maintenance drug therapy

- Preferably oral
- Children usually prefer syrup
- Older children can be given SR morphine tablets/caps
- Overlap last dose of syrup morphine with 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 50mcg 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 4hourly, 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 discontinue after 5-10 days.

PALLIATIVE CARE

Children with life-limiting conditions are referred to the palliative care team for management of symptoms, comfort care and psychological support. This is a home care service for children who prefer to spend their last days at home rather than in hospital. Palliative nurse clinicians regularly visit these children at home to make sure that they are pain-free and as comfortable as possible. Parents and care-givers are also provided with guidance and psychological support. Basic equipment (wheelchair, oxygen concentrators) and medication is provided.

USEFUL DRUG LISTS FOR USE IN CHRONIC PAIN

Table 1: Non – Opioid Drugs

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

^ lacks anti-inflammtory 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 = 0.01 – 0.04 mg/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 recommended		0.1-0.2 mg/kg every 3-4h	3-4h
Fentanyl	100µg	1-2µg/kg/h continuous infusion		25µg patch	72h (patch)
Controlled release Morphine				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	Amitryptyline 0.2-0.5 mg/kg PO. Titrate upward by 0.25mg/ kg every 2-3days 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/d PO. Titrate upward over 3 -7 days. Maintenance: 15-50mg/kg/d 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 15-30min before procedure; 0.05mg/kg/dose IV	Acute anxiety, muscle spasm. Premedication for painful procedures