MANAGEMENT OF ACUTE PAIN IN KIMBERLEY HOSPITAL

Some pain relief is better than none at all, but the goal of any doctor or nurse should be to relieve suffering by providing effective postoperative/acute pain relief to every patient in pain. This is one of the principal tenets of the oath we all have taken.

The treatment of acute pain is no longer a luxury for the financially privileged or for the fortunate patient whose doctor thinks some pain relief might be necessary.
Uncontrolled pain causes profound changes on normal physiology, especially in the postoperative patient and it has severe debilitating effects if left untreated.
Regarding its impact in the hospital setting, it has been found to delay postoperative recovery, lengthen average hospital stay, increase patient morbidity and decrease the quality of life.
On these grounds, it is thus no longer regarded as a treatment option, but as treatment necessity.
Acute pain has been thoroughly investigated in clinical trials and is now accepted to be the 5th vital sign in patients. In other words, frequent assessment of pain should be a routine function of nursing staff and of doctors just as the assessment of BP, pulse and temperature are.

Accordingly, it is the duty of all doctors in Kimberley Hospital to not only treat pain when it ***seems*** the patient is suffering, but to both apply pre-emptive pain management and to treat established pain effectively.

COMMONLY USED ANALGESIC DRUGS AVAILABLE IN KIMBERLEY HOSPITAL

(for general use – Oncology/ICU/Theatre/Consultant-restricted drugs not included)

ORAL MEDICATIONS (general)

1.	PARACETAMOL	syrup	(25mg/ml)
		tablets	(500mg)
2.	PARACETAMOL+CODEINE	tablets	(500mg+8mg)

ORAL MEDICATIONS (NSAIDs)

1.	DICLOPHENAC	tablets	(25mg)
2.	IBUPROFEN	tablets	(200mg/400mg)
		suspension	(100mg/5ml = 20mg/ml)

ORAL MEDICATIONS (OPIOIDS)

1.	TILIDINE (Valoron®)	drops	1drop = 2.5mg -PAEDIATRIC USE ONLY
2.	MORPHINE SULPHATE	syrup	(15mg/10ml)

RECTAL MEDICATIONS (Suppositories)

1.	DICLOPHENAC	12,5mg/ 25mg / 50mg / 100mg
2.	INDOMETHACIN	100mg

IV/IM MEDICATIONS (NSAIDs)

DICLOPHENAC (IMI only)	75mg/3ml

IV/IM MEDICATIONS (OPIOIDS)

1. PETHIDINE 25mg/ml ; 50mg/ml ; 100mg/2ml

2. MORPHINE-CODEINE-PAPAVERINE (OMNOPON®) 20mg/ml

3. MORPHINE SULPHATE 10mg/ml or 15mg/ml

GENERAL PRINCIPLES OF ACUTE/POSTOPERATIVE PAIN MANAGEMENT

- Where possible, pre-empt pain rather than to allow it to become established.
- **Listen to the patient** – he or she is the one with the pain.
- Each patient's experience of pain is different, so what might be highly effective for one, may not be as effective in another.
- The experience of pain is multifaceted and multifactorial. If there is a strong psychological component to the pain, treating this will improve the efficacy of your pain management.
- **Be Aggressive!** Do not be afraid to use effective drugs in effective dosage schedules.
- **Patients in acute pain DO NOT develop addiction to opioids**.
- **DO NOT** write up medication for acute/postoperative pain as a **prn** administration. **PRN stands for 'PATIENT RECEIVES NOTHING'**.
- Use a multimodal approach to pain. (see the protocol)
- Leave orders for staff to contact you if your patient experiences breakthrough pain. Do not delegate this to the inexperienced junior on call unless he/she has been adequately trained in pain management (rotation through Anaesthesia).

A SUGGESTED APPROACH TO ACUTE / POSTOPERATIVE PAIN

It is not practical or effective to just use the standard Paracetamol 2 6hly or Pethidine 50mg 6hly approach to a patient in pain.

There are a few basic questions that should be answered before deciding on the drugs to be used and these are:

- **How severe is the pain?**
- **Can medication be taken orally?**
- **How long is the pain expected to continue?**
- **Are there factors that might modify my dosage schedule?**
- **Are there allergies or contra-indications to my chosen drugs?**

How severe is the pain?
This can be assessed on grounds of:

- patient-volunteered information (not too bad vs I can't cope)
- the type of operation undergone (breast lump excision vs hip fracture or laparotomy);
- the patient's condition (soft tissue injury vs acute pancreatitis)
- a simple question assessment (no pain/manageable pain/severe pain/very severe pain)
- or an analogue scale (draw a 10cm line with 0=no pain and 10=worst pain imaginable; then ask the patient to make a mark on the line which indicates their pain. A mark >7cm requires immediate aggressive intervention; maintaining a mark <4cm indicates adequate pain relief and treatment. A mark 4-7cm indicates inadequately controlled pain.
  This scale can also be used to assess the efficacy of treatment.

Can medication be taken orally?
Many postoperative patients are kept NPO for a few days and this must be kept in mind when prescribing pain medication. Patients in the wards may also be NPO for other reasons.
If only oral analgesics are prescribed, this may mean that they receive nothing for pain.
Effective pain relief can often be achieved through the oral route alone.

How long is the pain expected to continue?
Most acute or postoperative pain, if effectively treated, subsides within 48hrs.
A conversion from high dose opioids to lower doses or to other analgesics can then be considered. This can be factored in on the prescription chart. Unexpected persistent severe pain after 48hrs or pain that suddenly worsens may indicate underlying complications.

Are there factors that might modify my dosage schedule?
Neonates, small children and the elderly require different dosage schedules to older children and adults.
Severely debilitated, malnutritioned or emaciated patients usually require dosage modification especially for parenteral opioids. Oncology patients may require higher dosages, despite poor physical condition.
Renal and/or liver disease or dysfunction also requires dosage modification, especially of opioids – sometimes up to 50% less than normal.

Are there allergies or contra-indications to my chosen drugs?
A specific allergy for an analgesic drug obviously precludes its use.
There are lists of contra-indications or cautions for the use of many analgesics, but some of the more important ones are:

- paracetamol use in liver failure
- high-dose opioid use in patients with underlying severe respiratory impairment, cerebral depression or impaired airway reflexes
- pethidine is a neuro-excitatory drug and should be avoided in epileptics, eclamptics, patients with psychosis of any origin, brain injury, CVA's and patients on MAO-inhibitor drugs or anti-psychotic drugs.
- the use of NSAIDs in aspirin-induced asthma, renal dysfunction/failure, the elderly, GI ulcers/bleeds, dehydrated patients, severe PET, ischaemic heart disease, uncontrolled hypertension and patients on Warfarin.
- Avoid suppositories in patients with diarrhoea, proctitis or other anorectal inflammation.

TIPS AND SUGGESTIONS

Irrespective of the route, opioids used for people who are **not in pain**, or in doses larger than necessary to control pain, can slow or even stop breathing. The key principle is to **titrate the dose against the desired effect** – pain relief – and minimise unwanted effects, like nausea, itching, headache and flushing.

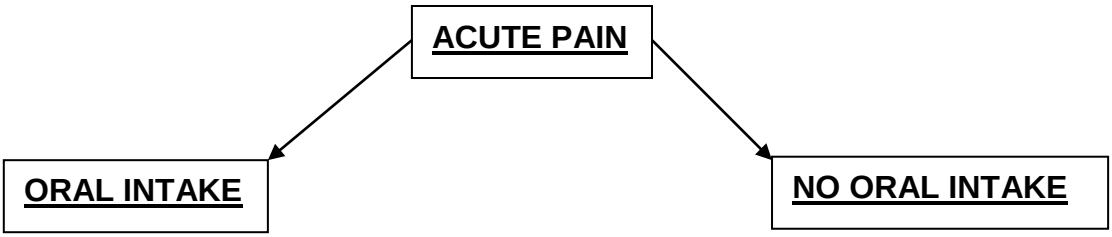
NB! When using opioids, **morphine is the drug of first choice**. Repeated or prolonged dosing with pethidine can result in disorientation, hallucinations or seizures due to norpethidine toxicity. Consequently, pethidine is used preferably only when side effects or allergic reactions prohibit the use of morphine.

If the patient is still complaining of pain and you are sure that the drug has all been delivered and absorbed, then it is safe to give another, usually smaller, dose (five minutes after intravenous, 60 minutes after subcutaneous or intramuscular, 90 minutes after oral morphine).
If the second dose is also ineffective, then repeat the process or change the administration route to achieve faster control.

Always use the maximum dose and shortest dosage interval permitted, especially initially, otherwise your patient will get a see-saw or on-off type of pain control.

Delayed release formulations, oral or transdermal, should not be used in acute pain because delayed onset and offset are dangerous in this context. These are not included on the ACUTE PAIN PROTOCOL and are generally unavailable in KHC.

THE ACUTE PAIN PROTOCOL



MILD PAIN

- Paracetomol or Paracetamol+Codeine
- Oral NSAID if needed

MODERATE PAIN

- as for mild pain, PLUS
- NSAID suppository/IMI
- IMI opioid if needed

SEVERE PAIN

- as for moderate pain, PLUS
- IMI opioids, PLUS consider adding IMI hydroxyzine (Aterax®)

VERY SEVERE PAIN

- initiate IV opioid protocol, then continue as for severe pain.
- if pain is not controlling on all of the above, contact the MO on call for the Acute Pain Service.

MILD PAIN

- NSAID suppository or
- NSAID IMI (diclophenac)

MODERATE PAIN

- as for mild pain, PLUS
- IMI opioid of choice

SEVERE PAIN

- initiate IV opioid protocol then continue as for moderate pain, PLUS consider adding IMI hydroxyzine (Aterax®)

VERY SEVERE PAIN

- if pain is not controlling on all of the above, contact the MO on call for the Acute Pain Service.

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THE IV OPIOID PROTOCOL

According to the above ACUTE PAIN PROTOCOL, patients in severe or very severe acute pain must be started on the IV OPIOID PROTOCOL. This is an interim measure to reduce the patient's pain and get adequate opioid levels in the blood. Thereafter, the patient is managed on IM opioids according to the ACUTE PAIN PROTOCOL. When this is insufficient and the IV PROTOCOL has to be repeated to obtain pain relief, or for paediatric cases, consult the Acute Pain Service MO.

OPIOID	DOSE	DILUTION	CONCENTRATION	ADMINISTRATION	TOTAL
MORPHINE (adults/>50kg)	10mg/ml	To 10ml with N/Saline or water	1mg/ml	2.5ml (2.5mg)x2, then 1ml (1mg). Interval between doses 3-5min	10ml(10mg)
MORPHINE (children > 10kg)	15mg/ml	Add 15mg to 100ml N/Saline	0.15mg/ml	1.0ml for every 10kg body mass above 10kg. Dose interval 3-5min	2-3 doses
PETHIDINE	100mg/2ml	To 10ml with N/Saline or water	10mg/ml	2.5ml (25mg)x2, then 1ml (10mg). Interval between doses 3-5min	10ml(100mg)

APPLICATION OF THE ACUTE PAIN PROTOCOL

- At this time, due to the shortage of nursing staff in the wards, it is unreasonable to expect that the nursing staff must monitor, assess and apply the ACUTE PAIN PROTOCOL; this is part of your everyday duties as a Medical Officer, just like any other ward work.
- If you are treating your patient for acute pain, you must reassess regularly, ie every 2hrs, until you have achieved effective pain control.
- If your patient's pain is not controlling on your intervention level within 4-6hrs, step up to the next level, until your patient is comfortable, then you can assess every 4hrs.
- The MO on call for the Acute Pain Service is not available for consultation until you have applied the maximum level of the ACUTE PAIN PROTOCOL and your patient is still in pain.
- If your patient has severe acute pain and might benefit from a local or regional block technique, institute the ACUTE PAIN PROTOCOL and request a consult from the MO on call for the Acute Pain Service, alternatively contact Theatre.

DRUGS DOSES AND DOSAGE INTERVALS

Paracetamol / Paracetamol+codeine

Preparations: Tablets 500mg:

Dosage: 20-45kg body mass - 500mg 6hly
>45kg body mass - 1g 6hly

Syrup 120mg/5ml

Dosage: **Initial Loading dose:** Oral: 40mg/kg up to 500mg
Maintenance: Oral: 15-20mg/kg/dose 6hrly

NB! Do not exceed 90-100mg/kg/24hrs for children <45kg, or 4gm/24hrs for adults (or if weight > 45kg)

Ibuprofen:

Preparations: Tablets 200mg and 400mg
Suspension 100mg/5ml (>6mths age or >7kg mass)

Dosage: 5-10mg/kg/dose 6 to 8 hourly (normal sized adult 400mg 8hly) – 48hrs maximum

Diclophenac **General dose ~ 1mg/kg/dose lean body mass for 48hrs max**

Preparations: Tablets 25mg/50mg

Dosage: Adult >50kg body mass = 50mg 8hly - daily maximum 150mg

75mg IMI injection (only >50kg body mass)

Dosage: 75mg deep IMI (intragluteal or lateral quadriceps)12hly

Suppositories (12,5mg; 25mg; 100mg)

Dosage: Children 15-25kg - 12,5mg 8-12hly pr
Children 25-50kg - 25mg 8-12hly pr
Adults >50kg - 100mg 12hly pr

NB! Maximum daily paediatric dose is 3mg/kg in 2-3 divided doses.

NB! Never cut higher dose suppositories in an attempt to reduce the administered dose, because the active ingredient is not equally distributed in a suppository.

Indomethacin

NB! This drug has a very high incidence of GI and CNS side-effects, therefore preferably used only if Diclophenac and Ibuprofen unavailable. No paediatric formulation.

Capsules (25mg) - 25-50mg tds [max 48hrs]
Suppositories (100mg) - 100mg 12hly pr [max 48hrs]

Tilidine (Valoron®)Drops **(paediatric use only)**

1drop = 2.5mg

Dosage: 1mg/kg/dose 6hly, therefore 1drop per 2.5kg body mass every 6hrs sublingually

Pethidine

Preparations: injection 25mg/ml; 50mg/ml; 100mg/2ml
Dosage: **general dose is 1mg/kg/dose IMI 4hly, esp <50kg.**
Adults > 50kg, 75mg – 100mg IMI 4hly

For severe pain, an IV dose of 0.5mg/kg over 5min may be given. This is very effective in renal colic and biliary colic pain.

Morphine

Preparations: Syrup 15mg/10ml (ie 1.5mg/ml)
Dosage: 0.2 - 0.5mg/kg/dose 4hrly

Injection 10mg/ml; 15mg/ml
Dosage: **IMI –** 0.1mg/kg/dose 4hly up to 50kg
Above 50kg, 0.1 – 0.2 mg/kg/dose (7.5 – 15mg) 4hly depending on age, mass and severity of pain

IVI - for acute severe pain **in children**, an IV bolus of **0.02 - 0.05mg/kg over 2-5min** (see also IV opioid protocol)

For acute severe pain **in adults**, an IV bolus of **0.1mg/kg over 2-5min** (see also IV opioid protocol)
This is generally given as 5mg initially, then 1-2mg every 5min until pain relief is achieved. Caution when 10mg total dose is reached.

NB! It is mandatory that patients who have been given IV boluses of opioids should receive supplemental oxygen by mask or nasal prongs and should be closely monitored for at least 30min after the IV boluses have been completed, preferably with pulse oximetry.

NB! Any patient (especially trauma) in severe pain should be thoroughly assessed for hypovolemia and haemorrhagic shock prior to administering an IV bolus, to prevent acute collapse. If hypovolemia is suspected, fluid resuscitation should be instituted prior to the bolus, which should be given as smaller dose increments.

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