Department of Anaesthesia and Acute Pain Medicine
St Vincent's Hospital Melbourne
CLINICAL RESOURCE

Acute Pain Protocol for Upper GI patients in the ERAS program

Version 3 (October 2017)

Purpose:

To streamline and maintain a consistent approach to post-operative analgesic techniques in patients having major upper GI surgery. The aim is to fit in with the ERAS program, and provide increased consistency for surgeons, the acute pain team and other staff involved in post-operative care of these patients.

This sub-speciality has a large number of different anaesthetists doing the lists.

The protocol described below allows for individual preferences and variation. We should aim for improved consistency with specific regard to:

- Which patients go to ICU/HDU
- Protocol for ropivacaine infusions as part of a continuous wound infiltration technique
- Dose of intrathecal morphine, and choice of other opiate to use with ITM (should be fentanyl)
- Duration of post-operative epidural and CWI infusions (the Acute Pain Service will manage transition from TEA/CWI to oral analgesia on day 3)

It is recognised that a proportion of patients will have more complex issues, including chronic pain and opiate tolerance, that may make the time-frames suggested below difficult to achieve.

Patient education:

- All ERAS patients should receive appropriate education about post-operative analgesia; the majority of these patients will be referred to Anaesthesia Pre-admission Clinic.

Post-op ICU/HDU:

- All Whipple's operations and other major open upper GI resections who have a TEA should go to HDU/ICU post-operatively for haemodynamic and other monitoring; they should all have a CVC inserted

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- All open liver resections should go to HDU/ICU post-operatively
- All oesophagectomy patients should go to HDU/ICU post-operatively
- Other patients should go on a case by case patient

Protocol for Intrathecal Morphine (ITM):

- Dose to be 200-250mcg if < 70 years old and 100-150mcg if > 70 years old
- If other opiate is used intraoperatively it should be fentanyl
- Other management consistent with current APS Manual, in particular hourly sedations scores and respiratory rate monitoring for 24 hours, and supplemental O2
- Post-op fentanyl PCA (20-30mcg boluses), and this can be used immediately in PACU
- Very low threshold for HDU/ICU – **all liver resections should go to HDU/ICU**

Protocol for continuous wound infiltration (CWI):

- Device – Infiltralong (available from Greta Hall, kept near OR 7)
- Insertion – the surgeon should place it in to the posterior rectus sheath or between internal oblique and transversus abdominis
- A single catheter should be inserted when possible. Large wounds may require 2 catheters.
- Intra-op loading (if no epidural) – 40 ml of 0.5% ropivacaine (20-30 ml if small/frail)
- Post-op management (if no epidural) – continuous infusion of ropivacaine 0.2% at 10ml/hr; chart bolus of 8ml each 30 minutes; 4 hour maximum limit of 60 ml; dose reduce if small/frail (see table 1)
- Patients with two separate catheters should be connected to two separate pumps in which case the above rates should be the total doses
- Day 3 – plan removal of wound catheters

Table 1 – infusion protocol for ropivacaine 0.2% via continuous wound catheters

		Normal patient	*<50kg or frail*
1 wound catheter	Loading dose in theatre	40 ml 0.5% ropivcaine	20-30 ml 0.5% ropivacaine
	Continuous infusion rate	10 ml/hr ropi 0.2%	8 ml/hr ropi 0.2%
	Bolus *	8 ml ropi 0.2% each 30 minute	5 ml ropi 0.2% each 30 minute
2 wound catheters (each one to be numbered; each one needs its own ropivacaine infusion chart)	Loading dose in theatre	20 ml 0.5% ropivacaine in each cathter	10-15 ml ropivacaine 0.5% in each catheter
	Continuous infusion rate	5 ml/hr ropi 0.2% via each catheter	4 ml/hr ropi 0.2% via each catheter
	Bolus *	4 ml ropi 0.2% via	3 ml ropi 0.2% via

		each catheter each 30 minutes	each catheter each 30 minutes

* the Acute Pain Team should be contacted if > 2 boluses are required

Table 2 - Transitioning from TEA to CWI on the ward in circumstances where it is felt that systemic analgesia alone will be inadequate

9 am on day 3	Epidural infusion to cease; epidural catheter to remain in situ; follow APS LMWH guidelines – ie withhold *prophylactic* LMWH for 12 hours before removal; platelets and clotting should be checked, especially with liver resections Consideration given to starting oxycodone/naloxone with a loading dose at this point
11 am on day 3	APS review of patient to assess whether oral analgesia is going to be adequate and consideration given to commencing CWI, or to removing the CWI catheters; if appropriate a plan for timing of removal of epidural catheter will be made (A minority of patients will require recommencement of epidural infusion)

Protocol for thoracic epidural (TEA) management:

- Patients should have a CVC placed and ICU have agreed to accept these patients for low dose vasopressor/inotropes as required
- R2F4A2 for initial infusion, changing to R2F2A2 after initial 200ml bag
- Early failure needs to be recognised (before discharge from the recovery room) and an alternative technique chosen, or the epidural needs to be re-inserted
- For oesophagectomy patients - if the epidural is not providing thoracic analgesia or the patient is unable to deep breath and cough then the paravertebral catheter should be loaded with 6ml of R2 and then a continuous infusion commenced. Some patients may end up having the epidural catheter and the paravertebral catheter running concurrently. The total dose of local anaesthetic should not exceed 15 ml of ropivacaine 0.2% per hour.
- Wound catheters should be inserted by the surgical team as well in these patients and used in the event of epidural failure or to help transition patients off TEA on day 3
- Day 3 - plan transition from epidural to oral analgesia (or CWI in a minority of cases) on the morning of day 3; analgesia failure at this point can be managed by restarting the epidural, commencing CWI, or using intravenous opiate/ketamine and adjuncts

Ketamine:

- Patients may require ketamine in combination with wound catheters or PCA
- Commence as per guide in current APS manual
- Any patient who is opioid tolerant should have a ketamine infusion

Other analgesics:

- Paracetamol 1g qid which should be dose-reduced if there is significant liver disease or malnutrition
- NSAIDs at the discretion of the anaesthetist and APS

Open Hepatic Resections:

Pre-operative	Intrathecal morphine 200-250mcg (100-150mcg if > 70 years old)
Intra-operative	Fentanyl as required (avoid oxycodone/morphine) Parecoxib if no contraindication Wound catheter insertion with loading dose (TEA may be appropriate for specific patients)
Post-operative	HDU/ICU for all open hepatic resections CWI until day 3 FPCA (may need to change to OPCA after 24 hours when ITM has worn off)

Whipples and other major upper GI resection including gastrectomy:

Pre-operative	TEA insertion
Intra-operative	TEA by continuous infusion Wound catheter insertion without loading dose Parecoxib if no contraindication
Post-operative	TEA until day 3 as above APS to manage transition from TEA to oral analgesia, or CWI as required

Oesophagectomy:

Pre-operative	TEA insertion
Intra-operative	TEA by continuous infusion Parecoxib if no contraindication Insertion of paravertebral catheter by surgeons without loading dose
Post-operative	Effectiveness of epidural to be assessed in PACU Plan to run TEA with aim to remove on day 3 or 4 Consideration given to using R2A2 with a OPCA If pain scores ≥ 5 (in chest) and/or patient unable to deep breathe and cough then the paravertebral catheter should be loaded with 6ml of R2 and a continuous infusion commenced. A decision about whether to run the epidural catheter concurrently will be made on a case by case basis.

Laparoscopic cases that convert to open:

Pre-operative	NA
Intra-operative	Wound catheter insertion with loading dose Parecoxib if no contraindication
Post-operative	CWI until day 3 FPCA Consideration given to ketamine infusion

Audit and data collection:

In addition to routine data collection by the APS, we will be auditing compliance with this protocol as part of the ERAS audit.

This Clinical Guideline is to be used in conjunction with existing St. Vincent's Hospital and ANZCA Policies.