RAPP (Acute Pain) Resident Survival Guide

Epidural essentials:

Abdominal Surgery

Placed ideally at T9-10

Standard B1H10 at 6 mL/hr + 2 mL q20 minutes PRN

Most will be on ERAS protocol

Diet advanced quickly

Wait until tolerating PO pain meds to pull

Do not bolus catheters if sitting or standing

Thoracic Surgery

Placed ideally at T6-7

Standard B1H10 at 6 mL/hr + 2 mL q20 minutes PRN

Wait until chest tubes out and tolerating PO pain meds to pull

In addition, for esophagectomies must make sure patient is tolerating tube feeds

Do not bolus catheters if sitting or standing

Troubleshooting epidurals/nerve catheters:

Pain

1. Check procedure note in Epic to determine loss of resistance depth and the depth at which the catheter was secured.

2. Check depth at which catheter is currently secured to ensure that it has not moved or fallen out altogether.

3. Follow the catheter from the skin all the way back to the pump to ensure that it has not been disconnected and to make sure that the infusion has actually been running.

4. Bolus epidural/nerve catheter if secured at original position.

- Bolus with epidural mix or bupivacaine 0.25% (4-6 cc). As a "last resort" you can bolus lidocaine 1% (no more than 3 cc as significant hypotension can occur) to identify if the catheter is working at all.
- Remain with and monitor the patient for 10-15 minutes after bolusing an epidural to ensure vital signs remain stable when using anything other than the epidural mix.
- Consider increasing rate or concentration as appropriate (i.e., change B1H10 to B1H20 or B1F2 to B125F4).
- For all peripheral nerve catheters bolus bupivacaine 0.1% 10 cc.

5. If one sided, pull back the catheter and re-secure at a depth that is 1 cm less than the depth at which it was originally secured. After pulling back, re-bolus as per guidelines above.

6. Optimize adjuncts. The most common adjuncts used are listed below.

- Tylenol 975 mg Q6H standing (Q8H standing if liver dysfunction or age > 65)
- Lidocaine TD patch (Lidoderm) applied to affected area (12 hours on, 12 hours off to minimize risk of LAST)
- Gabapentin 100-300 mg Q8H standing
- Tizanidine 4 mg TID (hold for MAP < 65, SBP < 90)
- Toradol 15 mg Q6H standing (check with surgical team first)

Tylenol, Toradol, gabapentin, tizanidine, and Lidoderm are typical first line adjuncts. Amitriptyline (TCA – neuropathic agent), Lyrica (if failed or intolerant to gabapentin), baclofen (muscle relaxant), and Flexeril (muscle relaxant) are also frequently used, but to a lesser extent. There are multiple other adjuncts available on a case-by-case basis.

7. Remove opioid from the epidural and replace with a PCA. Common dosing regimens are listed below, but the PCA order set in Epic generally makes things very easy.

General PCA Dosing

	Morphine	Hydromorphone	Fentanyl
PCA dose	1.5 mg	0.2 mg	20 mcg
PCA lockout	6 minutes	6 minutes	6 minutes
Continuous	0	0	0
1 hour limit	15 mg	2 mg	200 mcg

Opioid-Tolerant PCA Dosing

	Morphine	Hydromorphone	Fentanyl
PCA dose	3 mg	0.5 mg	40 mcg
PCA lockout	6 minutes	6 minutes	6 minutes
Continuous	0	0	0
1 hour limit	30 mg	5 mg	400 mcg

8. If opioids and standard adjuncts fail, ketamine and lidocaine infusions can then be used. A standard starting dose for ketamine is 3 mcg/kg/min (typical range from 1-5). A standard starting dose for lidocaine is 1 mg/kg/hr (typical range from 0.5-2). For ketamine infusions, you must physically start the infusion yourself and remain present for 15 minutes after starting to ensure the patient is safe.

Motor block

1. Reduce rate until motor function returns or pause, wait for return of motor function, and then restart at a lower rate.

Hypotension

1. Ensure primary team has been notified! They should write for fluid boluses or pressors. Of course, determine if the epidural is the cause and make sure the patient is safe.

2. Pause epidural for at least 1 hour. If hypotension improves, restart epidural at a lower continuous rate or concentration.

Nausea/Itching/Confusion

1. Often caused by the opioid in the mix.

2. For itching, make sure the patient is ordered for and receiving Nubain (should be automatically ordered as part of the epidural order set).

3. If symptoms persist and are mild, reduce concentration (i.e., B1H20 to B1H10). If symptoms are moderate to severe, switch the opioid in the mix. Most times patients will have less nausea, itching, and confusion when you change from hydromorphone to fentanyl. However, changing from fentanyl to hydromorphone may still be effective in some patients. If symptoms continue to be bothersome, remove opioid from the epidural altogether.

Anticoagulant guidelines for pulling epidurals/nerve catheters:

Heparin (SQ)

- BID and TID dosing requires that last dose be held for 4-6 hours before pulling catheter. Next dose can be given immediately after catheter pulled.

*If the patient has been on heparin for ≥ 5 days, check CBC to ensure platelets are > 70

Heparin (IV)

- Determine if you will be able to stop heparin once started. If not, or if transition will be to another anticoagulant, then pull catheter before starting infusion.
- Pulling catheter needs to be coordinated with the primary team.
- Hold heparin for 4 hours.
- Check PTT.
- If PTT normal, pull catheter.
- Can restart heparin infusion 1 hour after catheter pulled.

LMWH

- For QD prophylactic LMWH (< 60 mg QD) hold for 12 hours before pulling catheter. Next dose can be administered 4 hours after catheter pulled.
- Patients with epidurals should never be on therapeutic LMWH or BID prophylactic LMWH.
- Treat paravertebrals as neuraxial.
- Other nerve blocks will be determined on a case-by-case basis.

Important contact information:

Dr. Gerner	Pager: 25005 Cell: 617-610-6651
Dr. Joudeh	Pager: 27788 Cell: 864-569-7084
Dr. Kamdar	Pager: 22707 Cell: 408-348-4797
Dr. McCurry	Pager: 25588 Cell: 517-256-6383
Dr. McDowell	Pager: 21139 Cell: 313-407-6616
Dr. Priya	Pager: 20252 Cell: 224-795-0469
Dr. Sabouri	Pager: 21750 Cell: 617-775-3260
Dr. Stefanovich	Pager: 35682 Cell: 617-909-5988
Dr. Wang	Pager: 13323 Cell: 978-809-9368
Dr. Chen (Fellow)	Pager: 20475 Cell: 402-301-7102
Dr. Domfe (Fellow)	Pager: 27989 Cell: 347-661-0337
IPS (Chronic) Pager	17246 (1PAIN)
RAPP (Acute) Pager	27246 (2PAIN)

Wiki

https://wikianesthesia.org/wiki/PracticeGroup:MGH/Acute_Pain:_Resident_Rotation