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VUMC Department of Anesthesiology
Practice Standardization Protocol for Living Donor Hepatectomy

Category: Perioperative Management

Individuals Involved: All care team members who participate in the care of patients undergoing living donor hepatectomy

Guidelines applicable to: All patients undergoing general anesthesia for living donor hepatectomy

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Living Donor Hepatectomy Management Guidelines

Preoperative Interventions

- Acetaminophen 1000mg PO x1 (written by in room anesthesia team)
- Midazolam 2-4mg IV prn anxiety
    - Encourage use if utilizing ketamine to minimize side effects
- +/- scopolamine patch if at risk for PONV

Intraoperative Interventions

- Duramorph (morphine PF) 3mcg/kg (max 300mcg) IT x1 pre-induction performed IN OR
    - If patient refuses Duramorph spinal or unable to perform, consider Methadone 0.05-0.1 mg/kg (IBW) IV x 1
- 5000u SQ Heparin post Duramorph spinal
- Minimize induction opioids and routine use during anesthetics
- Ketamine Bolus + Infusion
    - 0.5mg/kg with induction bolus
    - 5mcg/kg/min after induction until fascial closure
- Ketorolac 15mg IV x1 upon conclusion of case
- Bilateral rectus sheath + R TAP block with 0.25% ropivacaine + dexamethasone upon conclusion of case before emergence
    - Omit dexamethasone IV if giving in truncal blocks
- Fluid Management:

    - Consider 2 units ANH prior to incision
- PONV prophylaxis
    - Ondansetron 4-8mg IV given 30 minutes prior to emergence
    - Dexamethasone 8mg IV after induction (omit if given in truncal blocks)
- Heparin 25u/kg or 2000-3000u IV prior to vascular clamping—will be notified of timing by surgical team
- Lines/Drains/Monitors
    - Radial arterial line x1
    - Double lumen 14G CVC + CVP monitoring
    - Large bore PIV x1-2
    - OGT to be removed at conclusion of case
- Dispo: SICU

Postoperative Interventions (Orders written or cleared by surgical team)

Postoperative Pain (Orders to start on POD1 AM)

- Acetaminophen 650mg PO q8hr (max dose 2000mg/24 hrs)
- Ketorolac 15mg IV q6hrs x 8 doses (starting at least 4 hours after the intra-op dose)
    - Switch to ibuprofen 600mg PO q8hrs AFTER ketorolac doses are finished
- Muscle relaxants
    - Preferred: Methocarbamol (Robaxin) 500 mg PO q8h
        - Max dose 3000mg/day
    - Second line: cyclobenzaprine 5mg PO q8h
    - Third line: tizanidine 2mg PO q8hrs
        - May cause hypotension
- Lidocaine 5% 1-2 patch(es) daily applied lateral to abdominal incision
- Oxycodone 5mg PO q6hrs PRN severe pain
    - If patient does not tolerate oxycodone, consider:
        - Tramadol 50-100mg q6hrs PO PRN severe pain
            - Max dose 400mg/24 hrs
            - Caution with SSRI/SNRI/TCAs due to risk for serotonergic side effects
    - In the setting of oxycodone shortage, discuss with the surgical team before ordering hydrocodone-acetaminophen or oxycodone-acetaminophen to reduce multiple Tylenol sources

Pruritus

- Nalbuphine (Nubain) 5 mg IV q6hrs PRN
- Diphenhydramine 25 mg PO q6hrs PRN
- Ondansetron 8 mg IV q6hrs PRN

PONV

- Preferred: Ondansetron 4mg IV q6hrs PRN

- Can consider addition of scopolamine patch if not already in place
- Promethazine 6.25-12.5mg IV/PO q4-6hrs PRN

Anticoagulation

- Heparin 5000u SQ q8hs to start evening of POD 0

No gabapentinoids, lidocaine gtt, ketamine bolus or gtt, haloperidol, or narcotic PCA post operatively without discussion with surgical team.

Post-Donation Inpatient Clinical Pathway

POD 0:

- Admit to SICU
- D5 ½ NS @ 100-150 mL/hr
- Heparin 5000u SQ q8h to start evening of POD 0 (Hold for platelets<50; Do not hold for INR elevation. Discuss with surgery if concern for ongoing bleeding)
- Start clear liquid diet
- Famotidine 20mg IV q12h
- Lab orders: BMP, hepatic function panel, CBC, PT/INR, Magnesium, Phosphorus x 1 upon arrival to the SICU

POD 1:

- Transfer to 6 MCE
- PT/OT Consult
- Pain management per above
- Remove Foley
- Continue IV fluids until tolerating PO diet
- Advance diet as tolerated
- Senna/docusate 8.6mg/50mg 2 tablets q12h
- Start K-Phos Neutral 250 mg PO 4 times daily
- Famotidine 20mg PO q12h
- Lab orders:
    - BMP, hepatic function panel, CBC, PT/INR, Magnesium qAM at 0500
    - Phosphorus q12h
- Restart essential home medications per liver transplant pharmacist

POD 2:

- Social work consult (to assist in discharge planning)
- Saline lock IV fluids (if not discontinued on POD 1)
- Add Miralax 17g daily (No Lactulose per surgery team)
- Continue K-Phos Neutral 250 mg PO 4 times daily

- Famotidine 20mg PO q12h
- Lab orders:
    - BMP, hepatic function panel, CBC, PT/INR, Magnesium qAM at 0500
    - Phosphorus q12h

POD 3:

- Advance to regular diet
- JP drain management per surgery
    - Likely one drain to remain in place until close to discharge
- Add suppository vs enema if no BM
- Continue K-Phos Neutral 250 mg PO 4 times daily
- Famotidine 20mg PO q12h
- Lab orders: BMP, hepatic function panel, PT/INR, Magnesium, Phosphorus qAM at 0500
    - May discontinue PT/INR order once INR<1.5
- Discharge teaching with patient and caregiver (coordinator, pharmacy)

POD 4-6:

- Lab orders: BMP, hepatic function panel, PT/INR, Magnesium, Phosphorus qAM at 0500
    - May discontinue PT/INR order once INR<1.5
- Discharge home when meeting criteria
- Standard discharge prescriptions:
    - K-Phos Neutral 250mg BID x 3 days (if requiring higher-than-protocol phosphorus repletion post-operatively)
    - Famotidine 20mg q12h x 7 days
    - Enoxaparin 40mg subQ daily x 7 days
    - Acetaminophen 500mg q6h PRN pain x 7 days
    - Ibuprofen 600mg q8h PRN pain x 7 days
    - Senna/docusate 8.6mg/50mg 1 tablet q12h PRN constipation x 7 days