Living Donor Hepatectomy Anesthesia Pearls

Patient demographics, Disease background, and Procedural Description:

Donor hepatectomies are performed in healthy willing donors, donating a piece of their liver to someone with end stage liver disease (frequently a family member or friend.) The donor's remaining liver piece will regenerate to almost full size in the first month post-op. UCSF performs more right than left donor hepatectomies. Surgeons decide on right vs. left based on size matching between the donor and recipient. The incision for right hepatectomy is bilateral subcostal; incision for left hepatectomy is vertical midline.

Pre-op Assessment and Preparations:

These are usually ASA 1 patients. They frequently have been interviewed and case reviewed in advance by a member of the liver anesthesia team. However, plan to do full consent with patient in the morning.

The patient will have had an extensive pre-op work up beyond what you'd expect for an ASA 1 patient including full set of labs, EKG, TTE, abdominal imaging. Patients are pre-admitted the night before and typically have early morning repeat labs performed on day of surgery. Please look at newest lab results morning of surgery.

Block team will perform Erector Spinae Plane block in pre-op. Goal is block complete and in the OR at 07:30. If block team is busy or running late, you can help by positioning the patient prone for block, putting on monitors, etc. Block team will bolus ESP, then place catheters (bolus is usually 20 cc of 0.35% Ropi to each side, depending on patient weight/size).

Pre-op meds: anti-emetics as needed if PONV risk. Order 500 mg Tylenol + gabapentin. (Post-hepatectomy, patient will have 2 g max Tylenol per day). OK to skip pre-op meds if there are delays.

Intraoperative Portion:

Anesthetic Technique:

GETA. Routine induction. Maintenance with gas. Low dose propofol OK if PONV risk factors. Cefazolin for antibiotics, 10 mg Decadron for both PONV and analgesic affects (please confirm in MAR that Decadron wasn't already given that morning by surgical team/pre-op). Maintain deep plane of neuromuscular blockade with Rocuronium (infusion or bolus dosing of Roc). No lidocaine or other adjunct infusions. Low dose phenylephrine may be necessary.

Pain control: We don't run the ESP infusion pumps during the case. Plan to re-bolus at the end of the case (0.2% Ropi, usually 20 cc per side). Pumps and infusion bags will be ordered by the regional team. Please ask your tech to pick up the 2 ordered Ropi bags from pharmacy and bring them to the OR some time during the case. Bring the Ropi bags to the ICU when you transport the patient. The ICU RN will

have the pumps. ICU will start infusion through pumps (0.2% Ropi) upon arrival. Patient will need IV opioid intra-op as well (usually 250-350 mcg fentanyl, or less fentanyl + up to 1 mg hydromorphone).

Access/Fluid and Monitors:

Position and lines: Right arm tucked. Left arm out. ETT and OG tube. Place one large-bore PIV, preferably on left arm. NIBP on tucked arm. No arterial line, no central line. Place NMT on left hand. Please give extra attention to positioning and padding. Case duration usually 7-8 hours.

Fluids: Patient will have received maintenance fluids overnight before surgery. Patient should be kept dry until liver specimen is out. Keeping patient dry helps decrease venous bleeding in the liver. Sudden brisk bleeding can occur from hepatic vein branches during the hepatectomy, which could necessitate appropriate fluid resuscitation. Once specimen is out, confirm with surgeon and liberalize fluids. For most average-sized patients, goal is <1 L until liver specimen is out, then total ~2.5 L for entire case. Monitor and document fluids and UOP hourly. UOP will decrease during the hypovolemic period, but it tends to normalize at end of the case after you bolus fluid. Alert anesthesia attending and surgeon if significant decrease in hourly UOP.

EBL: Usually <300 mL. Cell saver is used for this case as precautionary measure. Cell saver return usually given to patient.

Patient pre-donates 1 unit autologous blood, and additional 1 unit pRBC available in OR. Surgeon may ask you to give the autologous blood. The cell saver and/or autologous blood are given once the portion of liver is removed.

Postoperative: Plan to extubate. All patients go to the ICU for first night.

Key procedure related points

Potential Complications

Ergonomic Considerations

Duration of case

References