UVA **Enhanced Recovery After Surgery (ERAS)** Protocol

(colorectal version [Hedrick / Friel])

A growing body of data suggests that excessive perioperative opioid utilization and over-aggressive fluid administration contribute to perioperative morbidity. Anesthetic techniques designed to minimize opioid use, as well as base fluid administration on a restricted, "goal-directed" approach are major components of enhanced recovery after surgery protocols at both the Mayo Clinic and Duke University. Using the Mayo and Duke protocols as a guide, the following protocol was developed by the Colorectal Quality Team Meeting in an effort to improve relevant outcomes in colorectal surgical patients

Pre-Operative (SAS):

- Clear fluids (Gatorade) up to 2 hours before induction of anesthesia
- Multimodal analgesia utilizing:
  - Celecoxib 400 mg PO
  - Gabapentin 600 mg PO
  - Acetaminophen 975 mg PO
- IV catheter placed but *no intravenous fluids given in SAS*

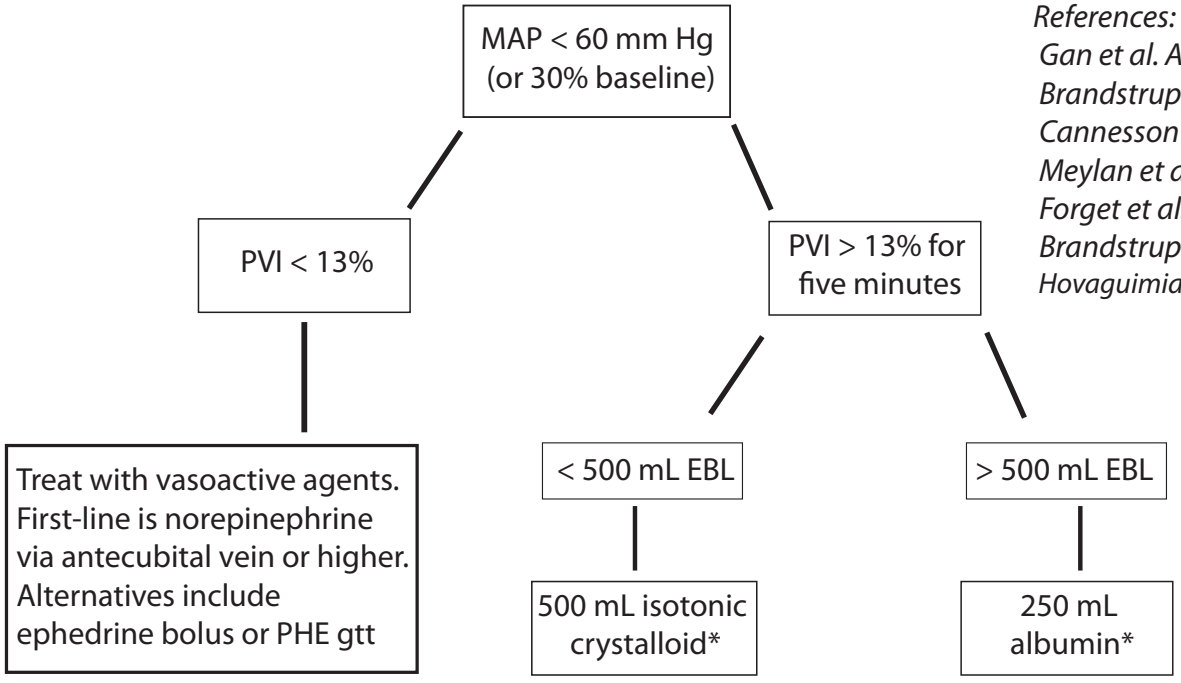
Updates:
1) Drs. Hedrick and Friel have requested that we consider neuraxial analgesia in the ileostomy / colostomy takedowns
2) Please write for prn ketamine in the PACU (20 mg boluses)

Intraoperative (OR):

- Duramorph (100 ucg) spinal pre-induction, SQH given *immediately* after the spinal
- NO INTRAOPERATIVE OPIOIDS (without attending approval)
- Induction: propofol, ketamine 0.5 mg/kg, magnesium 30 mg/kg (over 10 min), dex 4 mg
- IV analgesia: lidocaine 40 ucg/kg/min (continued into PACU), ketamine 0.6 mg/kg/hr (10 ucg/kg/min, stop ~ 45 mins prior to waking in laparoscopic, drop to 5 ucg/kg/min for open cases). No tylenol/ketorolac (see SAS, above)
- "Goal-Directed" fluids guided by Pleth Variability Index (below)
- Tidal volumes 6-8 mL/kg using 100% FiO_2

Postoperative (PACU and beyond):

- PACU orders: opioids are acceptable; 0.5 midaz mg + 20 mg ketamine PRN for rescue
- Lidocaine gtt for all pts (let APS know [page **1593**]; *let them know about chronic opioids*)
- Will get enoxaparin in the AM of POD1



**Total volume of fluid should not exceed 2 L above predicted losses (EBL + UOP)*

References:
Gan et al. Anesthesiology 97: 820, 2002
Brandstrup et al. Ann Surg 238: 641, 2003
Cannesson et al. BJA 101: 200, 2008
Meylan et al. BJA 102: 156, 2009
Forget et al. A&A 111: 910, 2011
Brandstrup et al. BJA 109: 191, 2012
Hovaguimia et al. . Anethesiology 119: 303, 2013