Enhanced Recovery After Surgery

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What is Enhanced Recovery?

Perioperative Care Pathway designed to achieve early recovery

• Reexamined traditional surgical/anesthesia practices and replaced them with evidence-based best practices
• Comprehensive and Multidisciplinary Approach to Perioperative Care
• Reduce patient’s stress response, optimize physiologic function, and facilitate recovery
What is Enhanced Recovery?

Perioperative Techniques proven to
- Decrease Length of Stay (30%)
- Decrease Perioperative Complications (50%)
- Decrease Nausea/Vomiting
- Decrease Postoperative Pain
- Decrease Time to Return to Baseline Function
- Improve Patient Satisfaction

What is Enhanced Recovery?

• In basic terms, it's simply a way of improving the patient's overall experience!
History

• First originated from the work of Dr. Henrik Kehlet during the 1990’s
• This led to the forming of several symposiums during the mid 2000’s
• The official ERAS Society, a non-profit group based in Sweden, formed in 2010
Cytokines and Postoperative Hyperglycaemia: From Claude Bernard to Enhanced Recovery after Surgery
Mid-thoracic epidural anesthesia/analgesia
No nasogastric tubes
Prevention of nausea and vomiting
Avoidance of salt and water overload
Early removal of catheter
Early oral nutrition
Non-opioid oral analgesia/NSAIDs
Early mobilization
Stimulation of gut motility
Audit of compliance and outcomes

Preoperative
- Preadmission counseling
- Fluid and carbohydrate loading
- No prolonged fasting
- No/selective bowel preparation
- Antibiotic prophylaxis
- Thromboprophylaxis
- No premedication

Intraoperative
- Short-acting anesthetic agents
- Mid-thoracic epidural anesthesia/analgesia
- No drains
- Avoidance of salt and water overload
- Maintenance of normothermia (body warmer/warm intravenous fluids)

ERAS

Postoperative
ERAS for Cystectomy

Preoperative

- Alvimopan (Urology)
- Gabapentin 600mg PO (Urology)
- Acetaminophen 1000mg PO (Urology)
- Heparin 5,000 sq (Urology)- given prior to induction
- 12 oz of Gatorade up to 2 hours prior to induction. (PAT/Urology)
- Avoid Midazolam
  - use fentanyl, if needed, for epidural placement

Intraoperative

- Ropiv 0.2% @ 3-5cc/hr via epidural
- Vigileo for Goal Directed Fluid Therapy
- 5% Albumin for Fluid Bolus
- Maintain normothermia
- No NGT (OG Tube, intraop only)
- Maintenance 1-3cc/kg/hr Crystalloid

Postoperative

- Ropiv 0.1% or Ropiv/Sufenta via epidural x 72hrs
- Maintenance fluids per Urology

No Narcotics!!
Goal Directed Fluid Therapy

Set up Vigileo
With patient on controlled ventilation, record SVV/ SV(Afib)
Start Plasmalyte at 1-3cc/kg/hr (max 400cc/hr)

Is SVV >13 or SV increased by >10% with fluid bolus??

Yes
Consider starting vasopressor

No
Monitor SVV or SV

Is Pt hypotensive?

Yes
Give colloid (5%Albumin) bolus of 250cc

No

Is SVV >13 or SV increased by >10% with fluid bolus??

Yes

No
Stroke Volume Variation

- Stroke volume variation is a naturally occurring phenomenon in which the arterial pulse pressure falls during inspiration and rises during expiration due to changes in intra-thoracic pressure secondary to negative pressure ventilation.

- Reverse pulsus paradoxus is the same phenomenon with controlled mechanical ventilation, however, in reverse. Arterial pressure rises during inspiration and falls during expiration due to changes in intra-thoracic pressure secondary to positive pressure ventilation.

- SVV has been shown to have a very high sensitivity and specificity when compared to traditional indicators of volume status (HR, MAP, CVP, PAD, PAOP).
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