Enhanced Recovery after Surgery (ERAS): History, Current Landscape and Research Update

Margeaux McGraw, MD
Jeff Elder, MD - Mentor
Department of Obstetrics and Gynecology, Greenville Health System Greenville, SC
I have no meaningful conflicts of interest to declare for this educational activity.
Presentation Outline

• General History

• ERAS
  – at GHS
  – in GYN Oncology
    • Current Research
      – Interim analysis
      – Moving forward

• Acknowledgements
What is ERAS?

• Paradigm shift in surgical management
• Protocols for preoperative, intraoperative, postoperative care
• Goals:
  • Maintain normal physiology
  • Encourage postoperative recovery
Traditional Management

- Restricted PO intake
  - Pre and postop
- Aggressive IVF replacement
- Narcotic pain control
- Routine bowel preps, NGTs, urinary catheters
- Restricted mobility
Incidences of pain and vomiting in patients: A, purged before and soon after operation; B, not purged before, but purged soon after operation; C, not purged before and not purged for four days after operation.
First Steps

• The Value of “Multimodal” or ”Balanced Analgesia” in Postoperative Pain Treatment
  – Henrick Kehlet, 1997

• Clinical nutrition literature
  – Olle Ljungqvist, Ken Fearon in early 2000s

• 2001-2004 establish ERAS Study Group (now ERAS Society)

• Colorectal literature
  – First applications
First Steps

• Multiple systematic reviews in colorectal surgery
  – Reduction of inpatient stays
  – Decrease in complication rates
  – Earlier return of bowel function
  – Decreased analog pain scores
  – No increase in mortality
First Steps

- Data from GYN Oncology
  - Reduced length of stay
  - Reductions in morphine equivalents
  - Improved patient satisfaction scores
  - Stable readmission, reoperation, mortality rates
  - Reduced hospital cost
ERAS at GHS

• Colorectal Group, 2015
• Thoracic Surgery, 2016-2017
• GYN Oncology, early 2017
• GYN Surgery, late 2017
Protocol Development

• Gynecologic Oncology
  – Spring - Fall, 2016
    • Protocol development
  – Winter, 2017- Current
    • Program initiation


- Department of Gynecologic Oncology, Tom Baker Cancer Centre, Calgary, Alberta, Canada
- Department of Obstetrics, Gynecology and Reproductive Sciences, University of Manitoba, Winnipeg, Manitoba, Canada
- Department of Gynecologic Oncology and Reproductive Medicine, The University of Texas MD Anderson Cancer Center, Houston, TX, USA
- Department of Obstetrics and Gynecology, Lausanne University Hospital, Lausanne, Switzerland
- Department of Anesthesiology, Borders General Hospital, Melrose, Roxburghshire, United Kingdom
- Anesthesiologists of Greater Orlando, Orlando, FL, USA
- Department of Anaesthesia and Intensive Care Medicine, Royal Surrey County NHS Foundation Hospital, Egerton Road, Guildford, United Kingdom
- Surrey Peri-operative Anaesthesia Critical Care Research group (SPACcr) Clinical Academic Group, FHMS, University of Surrey, United Kingdom
- Department of Obstetrics and Gynecology, Faculty of Medicine and Health, Örebro University, Örebro, Sweden
- Department of Gynaecologic Oncology, Royal Devon & Exeter NHS Foundation Trust, Exeter, United Kingdom
- Faculty of Medicine and Health, School of Health and Medical Sciences, Department of Surgery, Örebro University, Örebro, Sweden
- Division of Gynecologic Surgery, Mayo Clinic College of Medicine, Rochester, MN, USA

**Highlights**

- We provide evidence supporting postoperative management of patients undergoing gynecologic/oncology surgery.
- This guideline will help integrate knowledge into practice, align perioperative care, and encourage future investigations.
Protocol Development: Preop

• Preoperative Counseling
  – Standardized
  – Expectations:
    • Postoperative pain
    • Incentive spirometry
    • Diet
    • Ambulation
    • Catheter management
    • Discharge goals
Protocol
Development: Preop

• No mechanical bowel preparations
• No solids after midnight prior to surgery
• Water and 12-20 Oz carb load up to 3 hours prior to surgery
• PreOp LMWH, Lovenox, SCDs
• Multimodal pain management
  – Preop “Cocktail”
    • Celebrex 400 mg PO
    • Lyrica 75 mg PO
    • Tylenol 1 g PO
Protocol Development: Intraop

• Intraoperative Management
  – Induction: Propofol/Rocuronium, Decadron, 20-30 mg Ketamine, PRN Esmolol
  – Maintenance: Lidocaine 2 mg/min, Ketamine @ 4 mcg/kg/min, PRN Esmolol
  – 1L LR bolus case start, to maintenance @ 3mL/kg/hr
Protocol Development: Intraop

• Intraoperative Management Continued
  – Mechanical or pharmacologic VTE prophylaxis
  – IV antibiotics within 1 hour of incision, hair clipped, Chlorhexidine-alcohol preferred over iodine
  – If NGT necessary, should be removed prior to awakening
  – No peritoneal drains, including after bowel resection/lymphadenectomy
Protocol Development: Postop

- Postoperative Management
  - Analgesia
    - Lyrica 75 mg Q12h
    - Tylenol 650 mg Q6h
    - Celebrex 200 mg Q12h
  - IVFs
    - LR @ 40 ml/hr, DC on POD#1
  - Mobility
    - OOB 2 hours on POD#0, 6 hours on POD#1
- Dietary
  - Regular or comorbidity specific
Postoperative Management Continued

- Bowel regimen
  - Docusate 100 mg BID

- VTE prophylaxis
  - Mechanical in all patients, pharmacologic in high risk patients

- Glucose control
  - Goal to maintain glucose < 180-200
Research Question

• How does an enhanced recovery program in patients undergoing laparotomy, vulvar and minimally invasive surgery for pelvic disease effect postoperative recovery as defined by the following: length of stay, narcotic use, readmission occurrences?
Research Development

• Retrospective chart review
  – Cohort 1
    • January 2015 – December 2015
    • All major cases – including laparotomy, laparoscopy (RA), vulvar
  – Cohort 2
    • January 2017 – December 2017
    • All major cases – including laparotomy, laparoscopy (RA), vulvar
Research Development

• Patient demographics
  – Age, race, BMI, comorbid conditions, malignancy or pelvic disease diagnosis
• Surgical case by CPT code
• Primary outcome
  – Length of stay
• Secondary outcomes
  – Narcotic use
  – Readmission occurrences
• Comparison between MIS vs. open surgery
• Compliance?
Interim Analysis: Length of Stay

- From January to March 2017:
  - 81 Major Cases
    - 21 MIS Cases
    - 60 Laparotomy or Vulvar Cases
    - Mean length of stay 4.25 days

- From January to March 2016:
  - 77 Major Cases
    - 22 MIS Cases
    - 55 Laparotomy or Vulvar Cases
    - Mean length of Stay 4.78 days

- No significant difference yet (p=0.88, 95% CI)
- Required sample size for significance ~ 700 cases
Patient-controlled oral analgesia versus nurse-controlled parenteral analgesia after caesarean section: a randomised controlled trial

A. Bonnal, A. Dehon, N. Nagot, V. Macioce, E. Nogue, and E. Morau

1 Doctor, Department of Anaesthesiology, Arnaud de Villeneuve University Hospital, Montpellier, France
2 Medical Epidemiologist, 3 Research Fellow, 4 Biostatistician, Clinical Research and Epidemiology Unit, Medical Information Department, Montpellier University Hospital, Montpellier, France
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