Laparoscopic Colorectal Surgery

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Laparoscopic Colorectal Surgery

- Introduced in early 1990s
- Uptake slow
  - Steep learning curve
  - Requirement for equipment
  - Concerns regarding outcomes
- Improved outcomes
Laparoscopic Colorectal Surgery

- Outcomes from multiple RCTs
  - Equivalent oncological outcomes
  - Longer operation times
  - Reduced wound infection rate
  - Less pain & narcotic use
  - Less blood loss & usage
  - Shorter hospital stay
  - Reduced incisional hernias
  - Decreased adhesional small bowel obstruction
  - Lower morbidity (e.g. pneumonia)
  - Lower perioperative mortality
  - Less costly overall
Laparoscopic Colorectal Surgery

- Low rates of laparoscopic surgery in NSW
  - 20.7% of colonic resections
  - 15.5% of rectal resections
  - Percentage probably lower in rural & regional hospitals
ERAS

- Enhanced recovery after surgery (ERAS)
- Multimodal approach to improve functional outcomes
- ERAS combined with laparoscopic surgery further improves results
- Combined approach GOLD STANDARD in colorectal surgery
ERAS

- Pre-admission counseling
- Audit of compliance/outcomes
- Perioperative oral nutrition
- No bowel prep
- Fluid and CHO - loading/no fasting
- Early removal of catheters
- No premed
- No NG tubes
- Stimulation of gut motility
- Mid-thoracic epidural anaesthesia/analgesia
- Prevention of nausea and vomiting
- Short-acting anaesthetic agent
- Non-opiate oral analgesics/NSAIDs
- Avoidance of sodium/ fluid overload
- Routine mobilisation care pathway
- Warm air body heating in theatre
- Short incisions, no drains
ERAS

- Designed to reduce surgical stress response & consequences
- Traditional hospital stay 10 – 14 day
- Laparoscopic surgery + ERAS = hospital stay 2 – 3 days
Reducing Metabolic Stress

- **6 hours starvation for solids before surgery**
  - Prevent aspiration
  - Increase insulin resistance
  - Induce state like T2DM
  - Increase postoperative complications

- **Surgery best conducted in the fed state**
Reducing Metabolic Stress

- **Preoperative carbohydrate loading**
  - Complex carbohydrate drink allowed up to 2 hours preoperatively
  - Protein balance better maintained
  - Decrease postoperative insulin resistance

- **Early postoperative oral nutritional supplements**
  - Reduce postoperative complications
  - Decrease fatigue
  - Maintain nitrogen balance
Preoperative Bowel Preparation

- Physiological insult

- Does not reduce anastomotic leakage

- May increase wound infections

- Still a role in rectal cancer surgery?
Perioperative Fluid Balance

- Excessive fluid & sodium harmful
  - Delayed gut function (ileus)
  - Impaired tissue healing
  - Increase postoperative morbidity (esp. cardiopulmonary)
  - Longer hospital stay

- Aim to maintain preoperative body weight & euvolaemia
Perioperative Fluid Balance

- Intraoperative ‘goal-directed’ fluid therapy
- Optimise cardiac function
Surgical Technique

- Smaller incisions
- Decrease stress response
- Lower levels of IL-6 & CRP
- Faster recovery
Drain Tube

- No benefit for routine drainage
- Impairs patient mobility
- Increased analgesic use
- Does not protect against anastomotic leak
- May be appropriate in low rectal surgery
Mobilisation

- Early mobilisation
- Less feasible if multiple attachments limiting mobility
- Avoid tubes (e.g. drain, NGT, CVC)
- Remove tubes as early as possible (e.g. IDC)
Pain Control

- Epidural anaesthesia/analgesia
  - Hastens return of GI function
  - Improves pain control
  - Reduces pulmonary morbidity
  - Less nausea
  - Thoracic to avoid urinary retention & paralysis

- Paracetamol
- NSAIDs
- Avoid opiates
- Laparoscopic technique
ERAS Trials

- Multiple RCTs & meta-analyses
- Safe & effective
- Lower pain & fatigue scores
- Maintained muscle mass
- Reduced non-surgical complications
- Decreased hospital stay
ERAS Trials

- Earlier return to work
- Lower overall costs
- No difference in readmission rates, surgical complications & mortality
- No deterioration in quality of life
- Contribution of individual components of ERAS uncertain
ERAS & Open Surgery

- Benefits of ERAS demonstrated in open surgery
- Laparoscopic surgery greatly facilitates ERAS
- Benefits of laparoscopic surgery additional to ERAS
- RCT of ERAS in laparoscopic vs open surgery
  - Length of hospital stay 32% shorter
  - Combined hospital, convalescent & readmission stay 37% shorter
  - Readmission rate less (5% vs 26%)
Controversies

- Need for modification for different patient populations
- Role of epidural anaesthesia/analgesia in laparoscopic surgery
- Use of NSAIDs
- Contribution of individual components of ERAS
Challenges

- Multidisciplinary approach
- Significant change in healthcare culture
- Extensive retraining of staff
- Resource requirements
- Audit compliance
- Measure outcomes
Summary

- Evidence-based approach to perioperative care
- Aims to reduce stress response to surgery
- Now successfully adopted in diverse areas of surgery
  - Vascular
  - Orthopaedics
  - Upper GI
  - Hepatobiliary
  - Gynaecology
  - Urology
  - Breast

ERAS® Society
Improving Perioperative Care Worldwide
Summary

- Decrease postoperative complications
- Reduce length of stay
- Decrease healthcare costs
- Improve patient satisfaction
- Laparoscopic surgery + ERAS = GOLD STANDARD