Enhanced Recovery After Surgery(ERAS)- Improving outcomes

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ERAS : What is it?

- Multimodal and multidisciplinary approach to the care of the surgical patient.

- Protocoled pathway using evidence based items designed to
- 1.Reduce perioperative stress,

  2.Maintain postoperative physiological function, and

  3.Aaccelerate recovery after surgery.

  - Results in improvements in clinical care outcomes and costs savings

Pioneers of ERAS

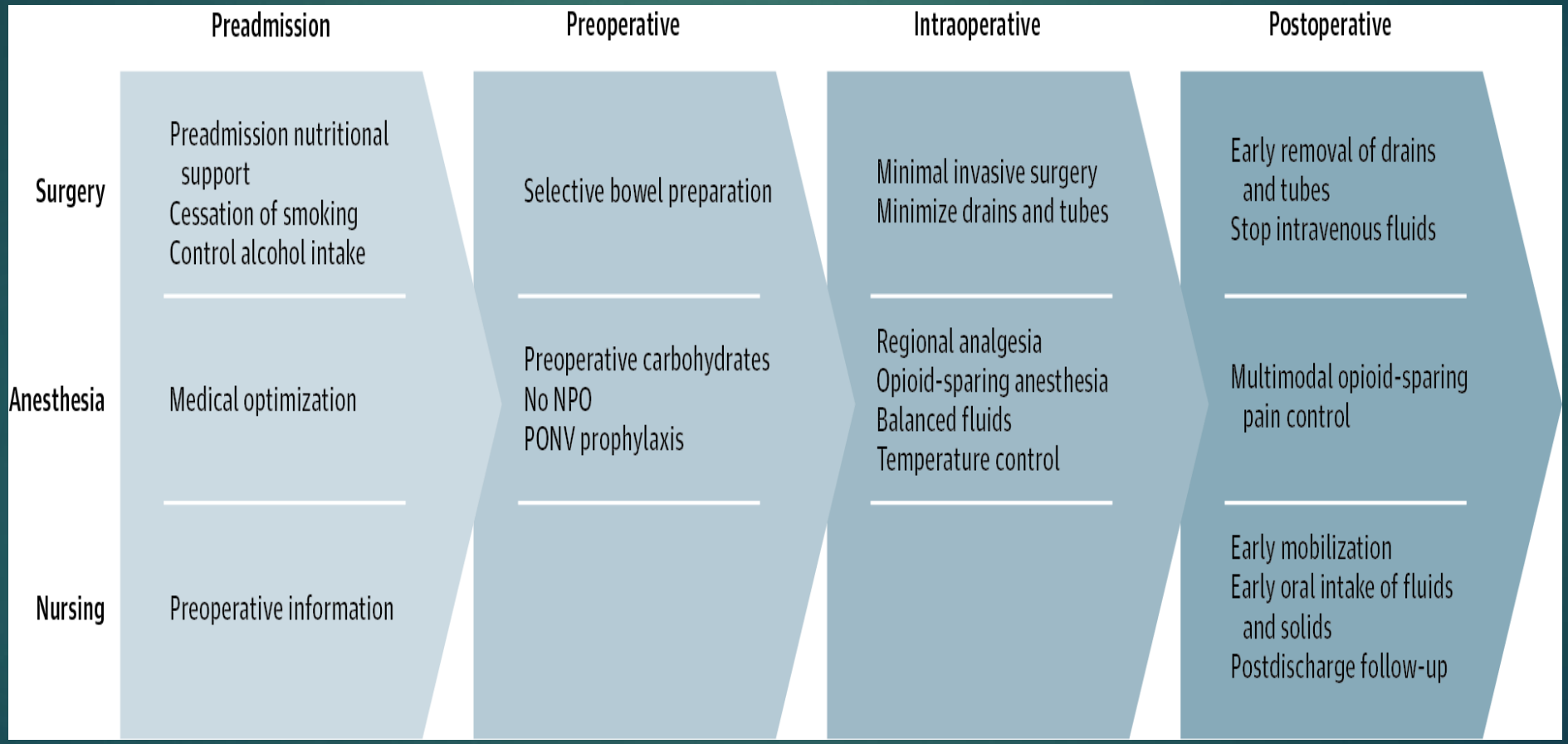
- Pioneered by a Danish surgeon Henrik Kehlet in 1995 for colonic resection
- ERAS study group gathered in London in 2001 (UK, Sweden, Denmark, Norway, Dutch)
  - Testing protocols, running symposia,and involving national health ministries

    Eg.ERAS partnership program in UK
- ERAS society-focuses on progress not only through research, education and developing models of implementation

Major Pillars of ERAS

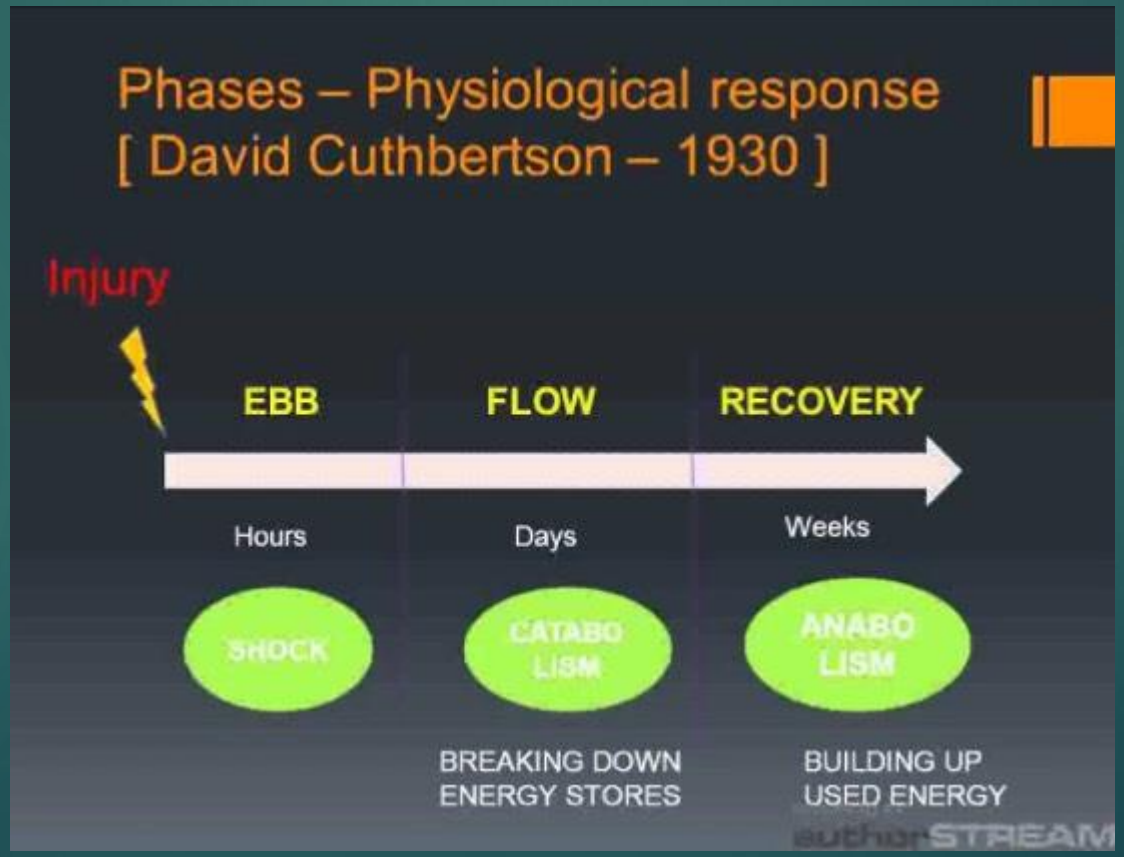
- Evidence based perioperative care processes
- Multi-modal-and multi professional teamwork
- Continuous audit

Enhanced Recovery After Surgery Flow chart



Rationale for ERAS

- ERAS reduces metabolic stress response to injury (surgery).

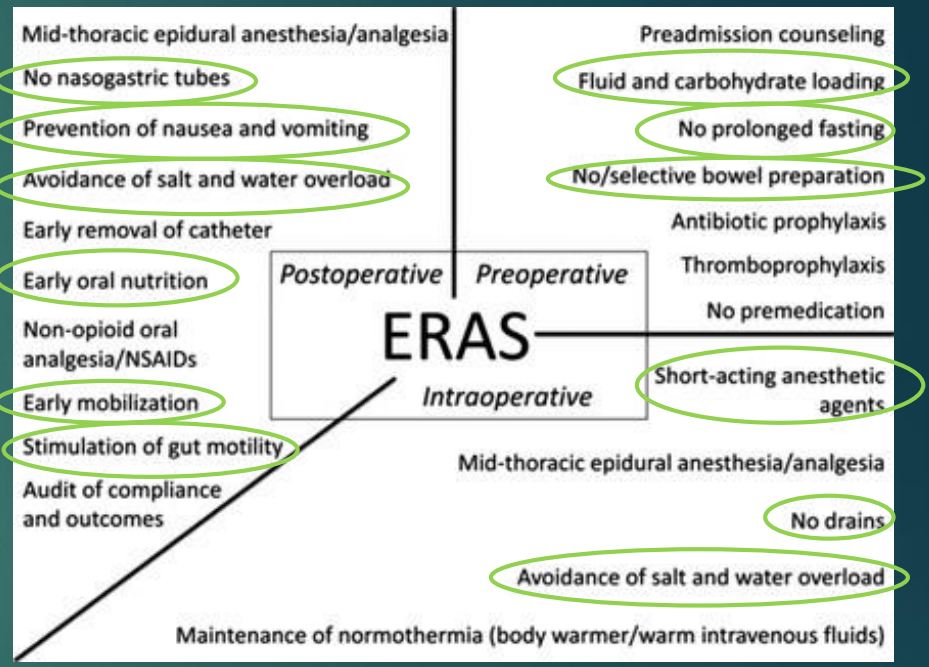


ERAS society guideline elements for colonic resection

- **Preadmission**
  - Cessation of smoking and excessive intake of alchohol
  - Nutritional assessment and support
  - Medical optimization of chronic disease
- **Preoperative**
  - Structured preoperative information and engagement of relative and care takers
  - CHO treatment
  - Prophylaxis for DVT, Infection, and PONV

ERAS – A Dietetics Perspective

- **Goal:** to optimise post-op muscle stores
  - Minimising insulin resistance:
    - Avoiding prolonged fasting
    - Pre-op carb loading
  - Early nutrition:
    - Prevention of post-op ileus
      - Intra-op fluid mx
      - Avoiding opioid use
      - Early mobilisation
      - Avoiding mechanical bowel prep
      - Stimulation of gut motility
    - Prevention of post-op nausea and vomiting
      - Prophylactic dual anti-emetics
      - Avoidance of IV opioids



ERAS society guideline elements for colonic resection

- **Intraoperative**
  - Minimally invasive surgical techniques
  - Standardized anaesthesia avoiding long acting opioids
  - Avoid over/underhydration,use of vasopressors to support blood pressure control
  - Epidural anaethesia for open surgery
  - Restrictive use of surgical site drains, NG tubes
  - Control of body temperature

Minimally Invasive Surgery

" *Reducing the surgical trauma*"

1.Laparoscopy

2.Shorter incisions/Transverse

3. Single Incision LaparoscopicSurgery(SILS)

4. Gel port(Handport)

5. Hybrid techniques

ERAS society guideline elements for colonic resection

- **Postoperative**
  - Early mobilization
  - Earl intake of oral fluid and diet
  - Early removal of urinary catheters and intravenous fluids
  - Use of chewing gums,laxatives, peripheral opioid blocking agent
  - Protein and CHO rich nutritional supplement
  - Opioid sparing approach for pain control
  - Prepare for early discharge
  - Audit outcomes and processes on regular basis

ERAS Team

- ERAS Coordinator (Nurse in Europe or Physician assistant in USA)
  - Key Role as "an Engine"
  - Manage practical matters
  - Training staff
  - Audit
- Medical leadership-Surgeon Supported by Anaesthetist

- Specialist services-Dietetics, occupational therapy and physiotherapy

"*Think small and make your own team; train a team who can work together*"

ERAS in elderly patient.

- Older and frail patient run a high risk for complication following abdominal surgery(British Geriatric society)
- Impact of ERAS protocol is positive on this cohort. Mutliple studies shows benefits but data is sparse.

Enhanced Recovery after surgery-ERAS-principles and practiceand feasibility in the elderly.

Olle Ljungquvistand Martin Hubner Aging Clinical and Experimental Research

Why change what we do?

- Improved patient experience.
- Decreased length of stay
- Decreased post op-complications
- Decrease re-admissions
- Increase revenue

Outcomes with ERAS

- Positive patient experience
  - Patient prefer to recover at home than in the hospital

  Bernard and FOSS,2014

- Length of Stay
  - Shorter stay(6 to 41/2 days)

- Complications
  - 11% reductions of complication rate
  - 8% Fewer admissions , saving $2800 to 5900 per patient

  Nelson G,Kiyang LN, Crumley ET et al
  World J Surg 2016;40(5)1092-1103

Financial Implications

- Mean direct cost decreased from $20,435 to 13,306=($7,129) or a total savings for ERAS study group(n=109) of$777,061(p=<0.001)

  Thiele et al 2015

Longterm benefits of ERAS

- Rapid, uncomplicated recovery

  70% compliance of ERAS for pre-op and intra-op components results in 42% reduction of mortality.

Gustafsson et al. World J Surg;40(7):1741-1747

Audit

- Important aspect in maintaining and improving quality

  “ *You want to know how you are doing*”

ERAS at LRH

- ERAS implemented at LRH in August 2017 for Elective Major Bowel Surgery
- 7-month audit conducted September 2017 – April 2018 (n=18)

Results:

Number of ERAS components followed vs length of stay

	Not ERAS (<5/18)	ERAS (5-8/18)	ERAS (>8/18)
	2	12	4
	15	11.25	7.25

The greater the number of ERAS components adhered to, the shorter the length of stay

Audit limitations:

- Small audit sample
- Poor documentation

ERAS – A Dietetics Perspective

LRH ERAS nutrition targets:

- Pre-op carbohydrate loading :
  - Day before surgery:

    100g CHO: 4 x 200ml *Nutricia preOp* (between midday-midnight)
  - Morning of surgery:

    50g CHO: 2 x 200ml *Nutricia preOp* in the 30 minutes before 6am for morning surgery OR in the 30 minutes before 10am for afternoon surgery

- Post-op early nutrition:
  - Free Fluids >2h post op
  - Full Ward Diet >4h post op
  - High protein drink (*Nutricia Fortisip*) twice daily on Day 0 until normal level of food intake achieved

Post-op early nutrition targets can not be achieved if other ERAS components are not adhered to (e.g. intra-op fluid mx, pain management, prophylactic anti-emetics)

ERAS at LRH

Latrobe Regional Hospital
caring for you and the community

% compliance for each ERAS component	Yes
PRE- OP	
Pre-op drinks	11%
No Bowel Prep	6%
Proph Abx	94%
INTRA-OP	
Fluid balance	33%
Core temp	28%
Dual anti-emetics	67%
Art line	94%
Epidural	83%
POST-OPERATIVE	
NGT removed	50%
DVT proph	94%
FF 2 h post	28%
HP supplements day1	6%
FWD 4hrs post procedure	6%
SOOB for 2hrs on day1	6%
Mobilising >10m D1	28%
Avoidance IV opiate analgesics. Oral opiates prn	44%
Reg dual anti-emetics 48hrs post	22%
IDC out day 2 post	28%

Compliance of ERAS targets remain poor throughout (intra-op through to post-op).
Likely to see greater patient outcomes and reduced length of stay with improved compliance.

Future of ERAS

- Principles can be applied across all other surgical disciplines

- Role played by the ERAS Society and the national society
  - Annual World congress of ERAS society in May 2019
  - ERAS interactive Audit Data System
  - Reporting on ERAS compliance RECOvER check list

Conclusion

- ERAS represents a paradigm shift in perioperative care
- ERAS improves the opportunity for rapid, uncomplicated recovery after surgery
- ERAS improves patient satisfaction, quality of care and saves money

Acknowledgements

- Lauren Nicole and Jessica Chan
  - Allied health/LRH

Thank you


ERAS Society
7th ERAS World Congress
Joint with
9th ERAS UK Conference
SAVE
THE DATE
1 - 3 May 2019
LIVERPOOL
For more information
7th ERAS World Congress | Liverpool, United Kingdom
ERAS Society
1 - 3 May 2019
LIVERPOOL

References

- Gustaffson UO et al.Guidelines forperioperative care in Elective colorectal Surgery: Enhanced recovery after surgery(ERAS) society recommendation. 2018
- Ljungqvist et al. Enhanced recovery after surgeryJAMA;152;3;292-297;2017
- Bardram et al Recovery after laparoscopic colonic surgery with epidural analgesia,and early oral nutrition and mobilization. Lancet.1995;345(8952);763-764
- Kehlet H, Mogensen T.Hospital stay of 2 days after open sigmoidctomy with multimodal rehabilitation programme.Br JSurg199986(2).227-230
- Adherence to the enahanced recovery after surgery(ERAS) group recommendation. Arch
- Surg 2009;144(10);961-969.
- Nelson G et al.Implementation of enhanced recovery after surgery(ERAS) across provincial health care system:the ERAS Alberta colorectal surgery experience World Journal of Surgery. 2016;40(5)1092-1103.