

THE ROLE OF THE ANESTHETIST IN ERAS

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CURRENT ROLES OF THE ANESTHETIST

Patient Pre -assessment



Patient Optimization



Anesthesia for Surgery



Immediate Post Operative Care

MODIFIABLE RISK FACTORS ADDRESSED IN PREOPERATIVE CLINIC

The Big Five

1. Anemia (IV Iron)
2. Glycemic Management
3. Nutrition (supplements)
4. Chronic Opioid Use
5. Hydration/ Carbohydrate Loading

ORAL CARBOHYDRATE LOADING

- 800 mls night before
- 400 mls up to 2 hours before surgery
- Avoid dehydration
- Patients feel better
- Metabolic effects – reduces insulin resistance
- No increased risk of aspiration (maltodextrins)
- Ensures patient is compliant with volume loading
- Not in Diabetics (yet)

INTRA-OPERATIVE EVIDENCE BASED ERAS ELEMENTS

1. Antibiotic prophylaxis prior to surgery
2. Avoid nasogastric tubes (if needed to decompress stomach remove at end)
3. PONV prophylaxis (2 different class of drugs)
4. Short acting anesthetic agents
5. Maintenance (if necessary) and monitoring of neuromuscular block

INTRA-OPERATIVE EVIDENCE BASED ERAS ELEMENTS

6. Depth of anesthesia monitoring where appropriate
7. Protective ventilation strategy (5-8 ml/kg) with optimal PEEP
8. Maintain normo-glycaemia
9. VTE prophylaxis- TEDS, calf compression device, chemoprophylaxis
10. Maintenance of normothermia- warming device/fluid warming

INTRA-OPERATIVE EVIDENCE BASED ERAS ELEMENTS

11. Consider analgesic technique (neuroaxial block/ TEA/TAP/truncal blocks) to reduce opioid need postoperatively
12. Goal directed fluid therapy where appropriate to optimize the cardiac output, maintain normo-volaemia but avoid fluid excess.
13. Aim for normo-volaemia and maintain $\text{MAP} \geq 65 \text{ mmHG}$ with vasopressors
14. Maintain optimal hemoglobin for the patient/ procedure.

ANTIMICROBIAL PROPHYLAXIS

- Single dose 15 min. to 1 hour before skin incision
- Further dosage if operation > 3 hours
- Local Hospital Guidelines
- 2 further doses appear routine in many centers
- Reduces Surgical Site Infection



NASOGASTRIC TUBES

- Can impair return of bowel function
- Disliked by patients
- Sore throat
- Increase the incidence of postoperative fever, atelectasis and pneumonia
- Only insert if gastric distention, requested by surgeon
- Can remove at the end of surgery
- Can protect from aspiration if ileus in the postoperative period

REDUCING POST OPERATIVE NAUSEA AND VOMITING

Scoring System to identify high risk patient

ROUTINE:

- Prophylactic antiemetics: 2 together
- 5HT₃, Dexamethasone, Cyclizine, Hyoscine
- Avoid Nitrous Oxide
- Reduce opioids

High Risk of PONV:

- Consider TCI propofol

SHORT ACTING ANESTHETIC AGENT

Induction

- Propofol/ opioid/ short acting muscle relaxant

Maintenance of Anesthesia

- Air/ Oxygen / short acting volatile agent/ TCI propofol
- Remifentanil infusion or short acting opioids

MONITORING NEUROMUSCULAR BLOCK

1. Ensures adequate abdominal muscle relaxation
2. Facilitates surgery and operating at a lower abdominal pressure
3. Ensures reversal of NMB and return of bulbar function - ? Less risk of micro – aspiration and post operative pneumonia
4. 2nd generation machines using acceleromyography better

ANESTHETIC AGENT & DEPTH OF ANESTHESIA MONITORING

Anesthetic Agent Monitoring

- To avoid awareness

BIS Monitoring

- Use to reduce giving too much anesthetic
- Especially elderly
- Reduction in post operative cognitive dysfunction

PERIOPERATIVE GLUCOSE CONTROL

- Poor glycemic control increases the risk of complications
- Tight glycemic control increases the risk of hypoglycemic events
- Maintain a normal glucose level
- Short term insulin glucose level necessary if patient becomes insulin resistant

MAINTAINING PATIENT BODY TEMPERATURE

Warm air blowers/ underbody heating/ warm IV fluids

- During surgery and into postoperative period

Hypothermia:

- Increased risk of wound infection
- Increased bleeding and transfusion requirements
- Shivering in PACU increases oxygen consumption
- Worse pain scores
- Reduction of morbid myocardial events

PROTECTIVE LUNG VENTILATION STRATEGY

- TV of 6-8 mls/kg
- Protects against lung damage
- Optimal PEEP
 - (reduces) micro aspiration)
- 8 mls TV /kg in ventilated patients allows the use of SVV and PPV

VENOUS THROMBO - EMBOLISM PROPHYLAXIS

- Risk scoring
- TEDS
- Calf compression
- Early mobilization
- Chemical prophylaxis
- Extended prophylaxis
- IVC Filter

Other Multifactorial Issues:

- Fluid therapy
- Cancer
- Chemotherapy

ANALGESIA = OPIOID SPARING

Analgesia:

1. Effective – Visceral and wound pain
2. Allow mobilization
3. Opiate Sparing

Oral Multimodal Analgesia:

1. Paracetamol
2. NSAIDS

ANALGESIA

Analgesia:

1. Effective
2. Allow mobilization
3. Opioid sparing

Oral Multimodal Analgesia :

1. Paracetamol
2. NSAIDS

Patients undergoing laparoscopic surgery can usually have their pain controlled by oral analgesics at 12-24 hours

Central neuroaxial:

1. Epidural
2. Spinal

Truncal/ Local Anesthesia:

- * Tap blocks
- * Rectus Sheath Catheters
- * Wound Infusion Catheters

MULTIBEAM ULTRASOUND

- Accurate targeting of nerves
- Less failure
- Enables lower volumes/ doses
- ? higher concentration
- Longer duration
- Catheter placement

OPTIMAL ANALGESIA AFTER SURGERY

Optimal Analgesia After Surgery



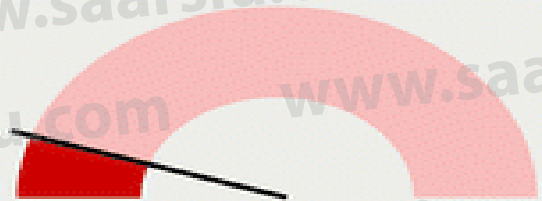
Optimized Patient Comfort

- Optimal Pain Rating
 - At Rest
 - With Movement
- ↓ Impact of Pain on Emotions
- ↓ Impact of Pain on Function
- ↓ Sleep Disruption
- Improve Patient Experience



Fastest Functional Recovery

- Drinking Liquids
- Eating Solid Foods
- Activities of Daily Living
- Mobilizing
- Bladder Function
- Bowel Function
- Normal Cognitive Function



Fewest Side Effects

- Nausea
- Vomiting
- Sedation
- Ileus
- Itching
- Dizziness
- Delirium

Encourages Postoperative DREAMS

[DRinking, EAting, Mobilizing, and Sleeping]

ANALGESIA SUMMARY

- There are many ways to provide analgesia for different surgical operations
- Efficacy and restoration of function is key
- Regular multimodal Analgesia and setting patient's expectations are core enhanced recovery principles
- Morphine sparing techniques are beneficial to avoid
 - ❖ Ileus
 - ❖ PONV
 - ❖ Drowsiness
 - ❖ Cognitive Dysfunction

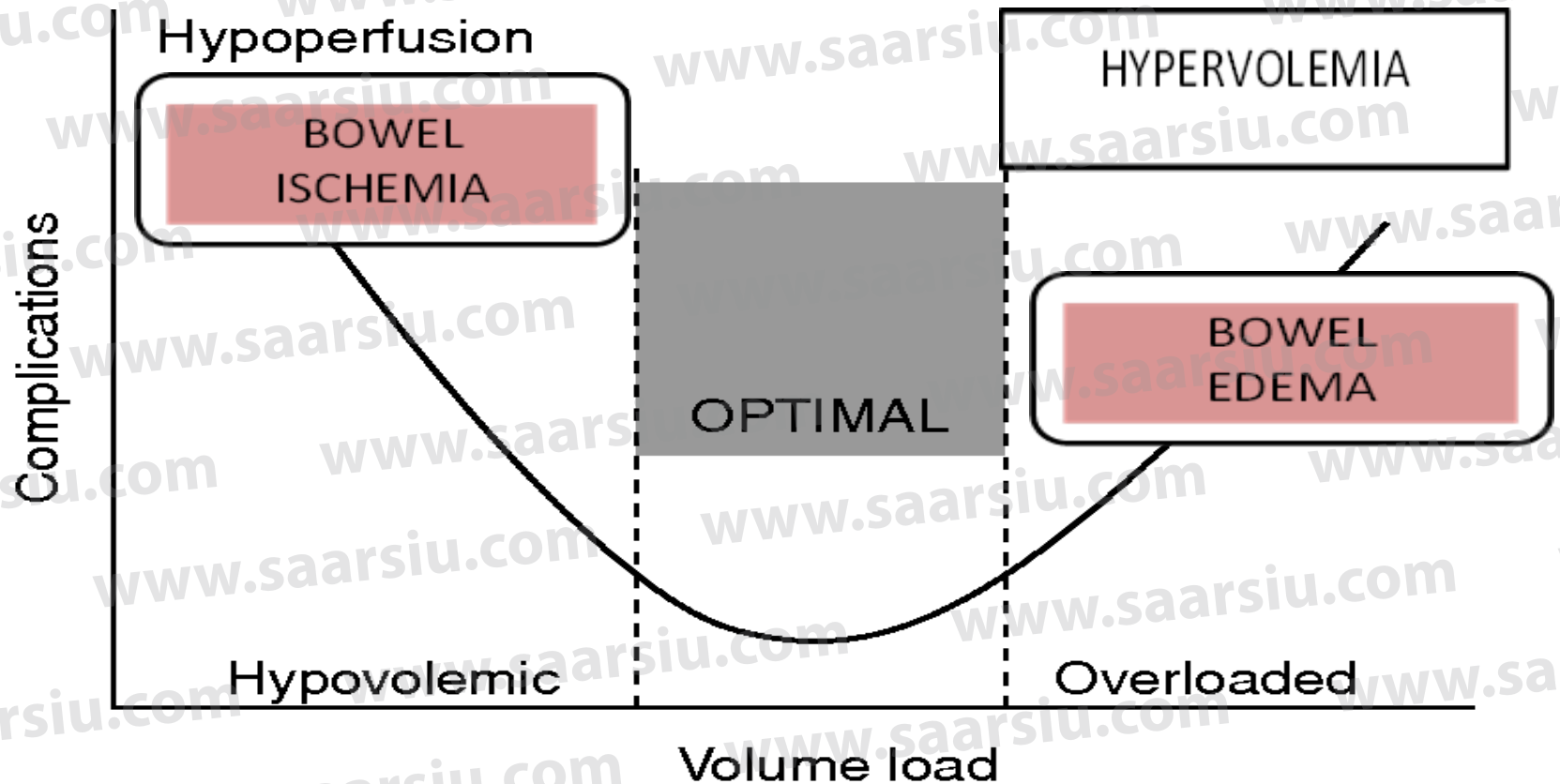
ANALGESIA SUMMARY

- Individual Approach:

- ❖ Patient
- ❖ Operation
- ❖ Surgical Approach

- Hospital should have a range of postoperative analgesic strategies
- Trouble shooting algorithms needed for breakthrough pain/ failure

OPTIMAL FLUID THERAPY



~~RESTRICTED OR LIBERAL FLUIDS?~~

Optimal Fluid Therapy is:

Right amount

Right Fluid

Right Time

ERAS FLUID THERAPY - OVERVIEW

Avoid Fluid shifts

- Avoid bowel prep
- Oral carbohydrate drink up to 2 hours preop
- Reduction of bowel handling and tissue injury- laparoscopic or laparoscopic assisted surgery
- Reduce blood loss

The following significantly effect fluid shifts / requirements:

- Open surgery/prolonged surgery
- Blood loss
- Prolonged SIRS, or sepsis

Individualised goal directed fluids to

- Maintain normovolemia
- Optimise DO_{2i}
- Vasopressors to maintain MAP
- Optimal Hb (individualized)

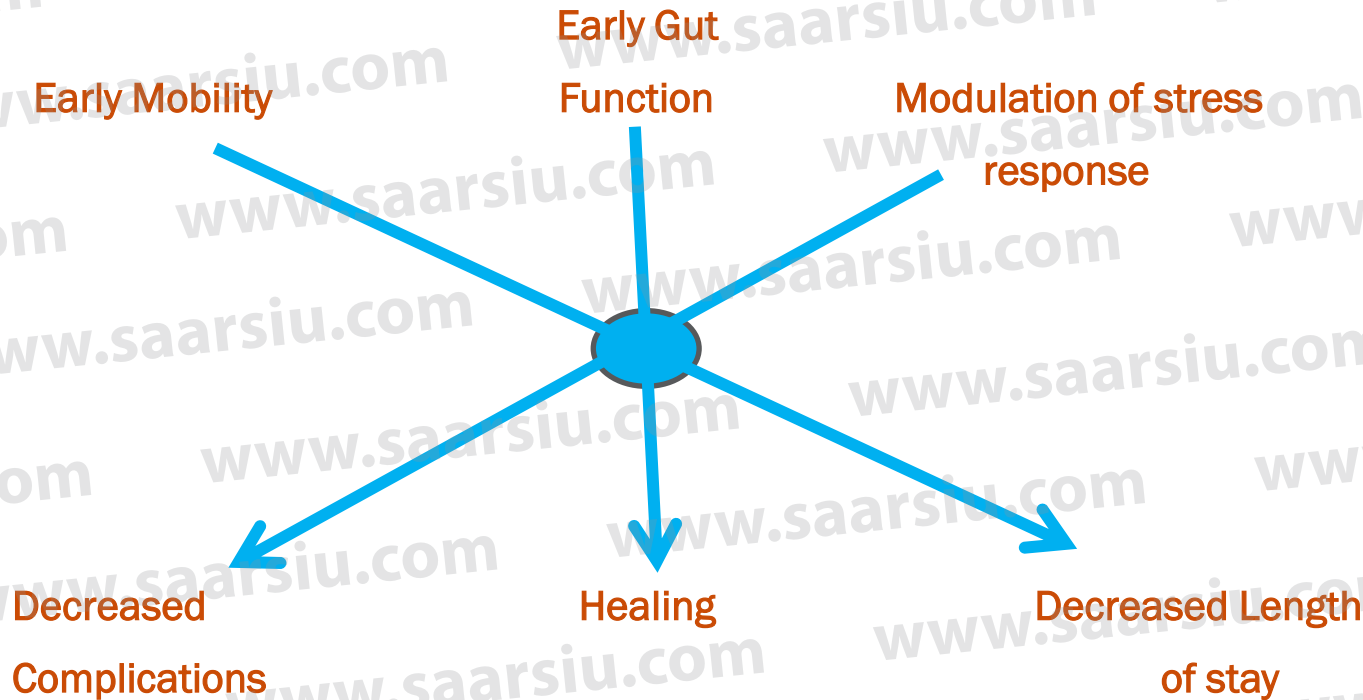
Postoperative

- Maintain normo-volaemia
- Restrict salt and IV fluid
- Early enteral feeding

SUMMARY - MAP

- ☐ If MAP is reduced below 65mmHg there is an increase risk of:
- ☐ Kidney Injury/ AKI
- ☐ Delirium
- ☐ Myocardial Injury/ MINS
- ☐ (Infection)
- ☐ The effect is increased by duration and magnitude below 65 mmHg
- ☐ An individualized MAP target may be beneficial but flow must be optimized first (so may not be just a pressure effect)

SIMPLIFIED ENHANCED RECOVERY IN LAPAROSCOPIC COLORECTAL SURGERY – TRIMODAL MODEL



**Thank
You**

