Fluid management in ERAS

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Debate continues

Goal-Directed Therapy: Time to Move on?
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Which goal for fluid therapy during colorectal surgery is followed by the best outcome: near-maximal stroke volume or zero fluid balance?


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Editorial

Stroke volume optimisation: is the fairy tale over?

Perioperative fluid management: science, art or random chaos?

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Figure 3  Fluid administration by surgical procedures. Corrected crystalloid infusion rates for procedures at both UCI and VU. Each boxplot is the median and range. For most procedures, about 50% of patients received between 4 and 10 ml kg$^{-1}$ h$^{-1}$ crystalloid; the other 50% obviously fell outside this wide range. Of note, UCI has a specific protocol for crystalloid administration during prostatectomies, and this group had the smallest range of any of the analysed procedures, suggesting that directed protocols can be effective in reducing variability.
References

• OPTIMISE Trial and systematic review. Pearse et al JAMA 2014; 311:2181-90
Fluid management in ERAS

- A continuum throughout the perioperative period
- Pre-operative—goal to the patient to arrive to the OR in a hydrated and euvolemic state
- Follow Modern fasting guidelines, pre-operative CHO loading beverage the night before and morning of surgery
- Avoid mechanical bowel preparation, if possible. Otherwise use a low impact bowel preparation as per ERAS Collaborative Guideline Notes
Goal-directed Fluid Therapy

- Use in High Risk surgery
  - Open or high risk to open
  - Longer surgical procedures > 3.0-4 hours (?)

- Use in High Risk Patients
  - ASA ≥ 3
  - Age > 80
  - Expected blood loss > 500 ml
  - Extremes of Body Mass Index
Fluid Guidelines

- All patients should come to the OR with an IV on controlled infusion device
- Use a balanced salt solution NOT normal saline
- Baseline infusions $\leq 2 \text{ ml/kg/hr based on ideal body weight}$
- Assess volume status prior to surgical incision +/- creation of the pneumoperitoneum.
- If there is clinical indication that the patient is hypovolemic bolus with 3ml/kg of IBW and reassess
- No clear evidence to recommend colloid over crystalloid
- If using a monitor fluid bolus should be given of 5-10 minutes to SVV
Fluid Guidelines

- Needs to individualized
- If no monitor used then “acceptable” volume likely in the range of >4 but <8 ml/kg/hr
- Goal is zero-balance therapy with the aim of maintaining euvolemia while minimizing excess salt and H2O
- If we are trying to compare volume of fluid in cases then the conversion of colloid to crystalloid is not 1:3 but instead 1 to 1.5
- **Corrected Crystalloid infusion rate** = crystalloid given minus estimated blood loss minus urine output
GDFT--Tools

ESOPHAGEAL DOPPLER

ARterial WAVEFORM ANALYSIS
Postoperative Fluids

- Encourage oral over IV fluids ASAP
- D5 .1/2NS for maintenance < 2ml/kg IBW
- Lock IV by POD 1 or TKVO if pt on PCA
- Low urine output <0.5ml/kg/hr IBW in isolation is not an indication for fluid boluses. Patients should be evaluated and examine for evidence of hypovolemia. Telephone orders for fluid boluses should be discouraged
Open discussion

Questions are guaranteed in life; Answers aren't.