Optimising intra-operative fluid therapy

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Optimal perioperative fluid management is an important component of Enhanced Recovery After Surgery pathways. Fluid management within ERAS should be viewed as a continuum through the preoperative, intraoperative and postoperative phases. Each phase is important to improving patient outcomes; and suboptimal care in one phase can undermine best practice within the rest of the ERAS pathway.

The goal of preoperative fluid management is for the patient to arrive in the operating room in a hydrated and euvolaemic state. To achieve this, prolonged fasting is not recommended, and mechanical bowel preparation should be avoided. Patients should be encouraged to ingest a clear carbohydrate drink two to three hours before surgery.

The goals of intraoperative fluid management are to maintain central euvolemia, and avoid salt and water excess. To achieve this, patients undergoing surgery within an enhanced recovery protocol should have an individualised fluid management plan. As part of this plan, both fluid restriction and crystalloid excess should be avoided in all patients. For low risk patients undergoing low risk surgery a moderately liberal (+1-2 liter fluid balance, but no more) approach might be sufficient. In addition for higher risk patients undergoing major surgery individualized goal directed fluid therapy (GDFT) is recommended. However ultimately the additional benefit of GDFT should be determined based on surgical and patient risk factors.

Postoperatively, once fluid intake is established, IV fluid administration can be discontinued and only restarted if clinically indicated. In the absence of other concerns detrimental postoperative fluid overload is not justified and ‘permissive oliguria’ could be tolerated.
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Key points

- Perioperative fluid management is important. Both hypovolaemia and excessive fluid administration are associated with harm.
- Prolonged fasting before major abdominal surgery is not justified and is not supported by evidence
- Maintenance fluid requirement during surgery should be delivered with the aim of maintaining preoperative body weight.
- Goal-directed fluid therapy aims to replace losses from the circulation and optimise stroke volume throughout the perioperative period. GDFT has been shown to reduce length of stay and complications after major surgery, and therefore may have added benefits in higher risk patients within an ERAS pathway.
- In the postoperative period, enteral nutrition and oral fluid intake should be commenced at the earliest opportunity and the IV then discontinued.
- In the absence of other concerns, perioperative oliguria should be tolerated.

Carbohydrate Loaded
Hydrated
Euvolaemic
Eunatraemic
Ready to
Start to **DR**ink, **EA**t, **M**obilize

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