ST VINCENT'S HOSPITAL MELBOURNE

Dept. Anaesthesia and Acute Pain Medicine

ERAS Perioperative Fluid Protocol for Elective Colectomy Surgery

Version 2019.02
Authors: T Phan, C Scarff, D Scott, on behalf of the department of Anaesthesia and Acute Pain Medicine

This Enhanced Recovery After Surgery (ERAS) fluid protocol is for intraoperative and postoperative fluid orders covering the first 24hours. It has been revised after the RELIEF trial (Myles PS, et al. Restrictive versus Liberal Fluid Therapy for Major Abdominal Surgery. N Engl J Med 2018).

The **"liberal fluid regimen"** should be the default in patients,

- >70yo and/or
- who have significant comorbidities (heart disease, diabetes, renal impairment or morbid obesity).

For lower risk patients, the more "**restrictive fluid regimen"** can be used although the evidence for benefit is equivocal. A more pragmatic approach for lower risk patients is somewhere between restrictive and liberal.

These guidelines used in a clinical context aim to give patients the right amount of fluid volume - achieving the aim of *not being overly restrictive and not overloading the patient*. Clinical context and individual patient titration is encouraged but please use these guidelines as a reference. ***It should not change decisions about IV fluid replacement for observed hypovolemia (whether clinical or measured).***

	Timing	Fluid Type	"Liberal" fluid amount (70kg)	"Restrictive" fluid amount (70kg)
Intraop	Post induction bolus	Hartmann's	**up to 10 ml/kg (700mls)**	**up to 5ml/kg (350mls)**
	Maintenance	Hartmann's	**8 ml/kg/hr (560mls/hr)**	**5ml/kg/hr (350ml/hr)**
	Replace blood loss[1,2]	Colloid/ crystalloid	ml for ml	ml for ml
	For large volume resuscitation or high-risk patients: monitoring of stroke volume/cardiac output (oesophageal Doppler or arterial pressure cardiac output device) is encouraged for titration of fluid volume (subject to availability and expertise)			
	**after 4 hours, guidance rates can be reduced if clinically needed* ***maximum weight for rate calculations - 100kg*			
Postop	Maintenance[3]	Hartmann's	**1.5mls/kg/hr (100ml/hr)**	**0.8mls/kg/hr (~40mls/hr)**
	Bolus PRN (low BP or U/O)[4]	Colloid/ crystalloid	250ml	250ml
	Total intraop (3hr Op)		***approx 2400ml***	***approx. 1400ml***
	Total 24hrs		***approx 5000ml***	***approx. 2400ml***

1. Replacement of blood loss should occur in equivolume, so for 1 ml blood loss give 1ml colloid/blood or 2-3mls crystalloid. It can be difficult to judge intra-op blood loss so this is at the judgement of the anaesthetist
2. There is no evidence to support the use of crystalloid or which colloid for replacement of losses, so this is at the discretion of the anaesthetist.
3. Maintenance postop should be written up to cover the patient until the following morning of surgery. **When the patient is eating and drinking this can be reduced or ceased**.
4. The parameter for post op fluid boluses would be for hypotension or inadequate urine output. The definition of hypotension is not given but would involve a sustained abnormal decrease in the blood pressure of the patient eg. SBP of 90 may be acceptable in a younger patient without cardiac issues. The definition of urine output requiring a fluid bolus is <30ml/hr for more than 4hrs.

Other points

- ERAS patients have x2 200mls Nutricia Preop drinks 2 hours prior to surgery and are offered water and ward diet as soon as they are on the ward.
- Modern colorectal surgery, particularly laparoscopic, minimises tissue trauma and blood loss.