Comparison of esophageal Doppler and plethysmographic variability index to guide intraoperative fluid therapy for low-risk patients undergoing colorectal surgery.

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STUDY OBJECTIVE: This study aims to investigate if there is equivalence in volumes of fluid administered when intravenous fluid therapy is guided by Pleth Variability Index (PVI) compared to the established technology of esophageal Doppler in low-risk patients undergoing major colorectal surgery.

DESIGN: Randomized controlled trial.

SETTING: Operating room.

PATIENTS: Forty low-risk patients undergoing elective colorectal surgery.
INTERVENTION: Patients were monitored by esophageal Doppler and PVI probes and were randomized to have fluid therapy directed by using one of these technologies, with 250 mL boluses of colloid to maintain a maximal stroke volume, or a PVI of less than 14%.

MEASUREMENTS: Absolute volumes of fluid volumes given intraoperatively were measured as were 24 hours fluid volumes. Perioperative measurements of lactate and base excess were recorded as were postoperative complications.
MAIN RESULT: There was no significant difference between PVI and esophageal Doppler groups in mean total fluid administered (1286 vs 1520 mL, P=.300) or mean intraoperative fluid balance (+839 v+1145 mL, P=.150).
CONCLUSIONS: PVI offers an entirely non-invasive alternative for goal-directed fluid therapy in this group of patients.