

Goal-Directed Fluid Management Using Plethysmographic Variability Index in Patients Undergoing Laparoscopic Bariatric Surgery.

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Abstract

Background: Optimal intraoperative fluid management is essential in surgical patients, including individuals with obesity undergoing bariatric surgery. The objective of this study was to assess the feasibility of pleth variability index (PVI) for intraoperative goal-directed fluid management in comparison with standard approach, in patients with obesity undergoing laparoscopic bariatric surgery.

Methods: A total of 60 patients with obesity who underwent elective laparoscopic bariatric surgery were included in this single-blind prospective randomized study. Patients were randomly assigned to the PVI group or control. Patients were monitored for PVI, heart rate, noninvasive mean blood pressure, and perfusion index. In addition, administered fluids, amount of bleeding, and renal function parameters were recorded.

Results: The PVI group received higher amounts of crystalloids (3053 ± 275 mL vs. 1703 ± 349 mL, $p < 0.001$) and colloids (277 ± 208 mL vs. 17 ± 91 mL, $p < 0.001$) intraoperatively, and it had higher perioperative urine output. In addition, the PVI group had decreases in blood urinary nitrogen (BUN), lactate, and creatinine levels; however, controls had increased BUN, lactate, and creatinine.

Conclusions: Findings of this study suggest that PVI may represent a useful noninvasive strategy for intraoperative goal-directed fluid management in patients with obesity undergoing laparoscopic bariatric surgery.