

The Effect of Patient Positioning on Pleth Variability Index during Surgery

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Abstract : Background: Fluid therapy is an important aspect of the perioperative period and a major challenge for anesthesiologists. To authors best knowledge, there is a lack of strong guidance and evidence regarding the optimal approach to fluid therapy. Therefore a variety of medical devices have been introduced to help physicians. In this study, we aimed to evaluate the effectiveness of pleth variability index in guiding fluid therapy in different patient positions. Materials and Methods: Inclusion criteria consisted of patients aged 18-50 years old and classified as American Society of Anesthesiologists physical status I and II, who were candidates for elective thyroidectomy surgery. In total, 36 patients meeting the inclusion criteria were enrolled in the study. After induction of anesthesia and start of mechanical ventilation Pleth variability index was measured in the supine position, then patients were placed in Trendelenburg and reverse Trendelenburg position (30 degrees, 5 minutes); Pleth Variability Index has measured again in the mentioned positions. Results: Mean PVI (Pleth Variability Index) in the supine position was 14.3 ± 3.7 in comparison to 21.5 ± 4.3 in the reverse Trendelenburg position. The mean PVI in Trendelenburg position was 9.1 ± 2.0 in Trendelenburg position ($p < 0.05$). Conclusion: In conclusion, we found that Pleth Variability Index varies with patient position and this should be taken into account when using this index during fluid therapy.

Keywords : fluid therapy, Pleth Variability Index, position, surgery

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