



The Effect of Overnight Fasting on Stroke Volume Index Measured by Whole Body Impedance Cardiography

Name: Sivaporn Termpornlert

Affiliation: Assistant Professor at Ramathibodi Hospital, Mahidol University

Country: Thailand

Email ID: stermpornlert@gmail.com

ABSTRACT

Background and Objective: Preoperative fasting is recommended to prevent pulmonary aspiration. Fasting induces hypovolemia. Intravenous fluid infusion is commonly given during anesthesia to minimize the risk of hypotension. However, intravenous fluid overload has been shown to deteriorate patient outcome. From previous literatures, the effect of preoperative fasting on intravascular volume is still inconclusive. There is no previous study that assesses intravascular volume status before and after fasting using the whole body impedance cardiography which is a non-invasive, practical and operator-independent. The reliability of whole body impedance cardiography is comparable to pulmonary artery thermodilution which is gold standard. In this study, we assessed stroke volume index (SVI) before and after fasting for 8 to 10 hours using whole body impedance cardiography.

Methods: This is prospective observational study. We included volunteers with American society of anesthesiologists (ASA) physical status classification I-II with age between 18-65 years old. SVI and other hemodynamic parameters were measured before and after fasting using whole body impedance cardiography. The absolute change of hemodynamic parameters before

and after fasting more than 10% indicated clinical significance. P value < 0.05 indicates statistical significance.

Results: Sixty-two volunteers were enrolled and completed the study. SVI before and after overnight fasting were 40.0 ± 8.7 mL/m² and 37.7 ± 8.2 mL/m², respectively. SVI after fasting was decreased 5.5%. The percentage absolute change of SVI in individual volunteer was in a range between 3.1% to -17.0%. Twelve subjects (19.4%) have decreased in SVI. Stroke volume (SV), cardiac output (CO) and cardiac index (CI) were decreased 5.6%, 6.6% and 6.4%, respectively. All hemodynamic parameters except heart rate were statistically decreased after fasting (p-value < 0.05) (but the absolute change less than 10%).

Conclusion: Overnight fasting does not clinically affect SVI measured by whole body impedance cardiography in healthy population. Some volunteers have significantly decreased in SVI after fasting and appropriate intravenous fluid therapy probably improves CO.



BIOGRAPHY

Qualification & Education

- M.D., Faculty of Medicine Chiang Mai University
- Diploma of Clinical Science (Anesthesiology), Ramathibodi Hospital, Mahidol University
- Certificate of Regional Anesthesia Clinical Fellowship, Shimane University, Japan
- Clinical Observer in Regional Anesthesia at Kansai Medical University Hospital and Yokohama-Minami Kyosai Hospital, Japan

Present Position

- Attending staff, Department of Anesthesiology, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Publications

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Presenter Name: Sivaporn Termpornlert

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Contact number: +66815528552





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