Goal Directed Fluid Therapy and the NPO Period: Does the Case Start Time Influence Fluid Management?

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Background and Goal of Study:The level of dehydration that develops during the nothing per os (NPO) period and its impact on intraoperative fluid management remain uncertain. Goal directed fluid therapy (GDFT) with SVV is a simple, hemodynamic variable for evaluating fluid responsiveness that was associated with improved outcomes in patients undergoing high-risk surgery. The aim of this study was to investigate if there is a statistically significant difference between the total volume of fluid administered to patients who underwent surgery in the morning (08.00 AM, first cases) versus the afternoon (12.00-15.00 PM) when using GDFT.
Materials and Methods:We retrospectively analyzed data from 100 patients in whom GDFT was applied intraoperatively with the FloTrac/Vigileo system and divided them into two groups: AM first case start (0800am start time) versus PM case time start (1200-1500). Patients with history of CHF or ESRD, and those who received bowel preparation were excluded. Variables recorded and compared between the two groups included: age, gender, American Society of Anesthesiologists class, comorbidities, body mass index, type of surgery, NPO time, blood loss, urine output, length of stay, readmission rate, fluid volumes and types, intraoperative hemodynamics, use of epidural analgesia. Primary outcome was influence of case-start time on crystalloid and colloid volumes. Secondary outcomes were total length of hospital stay (LOS) and 30-day readmission rates. Variables were compared using a Generalized Linear Model.
Results and Discussion:Variables found to predict total volume of fluids were ASA class ($p=0.001$), urine output ($p<0.001$), blood loss ($p<0.001$), and duration of surgery ($p<0.001$). Age, time of day for case start, NPO time, gender, use of epidural, weight, and height were not statistically significant predictors of total fluid volume. When including all of the model factors, there was no association between time of day and readmission rate ($p=0.96$), or time of day and length of hospital stay ($p=0.25$).
Conclusion(s) In our study population there was no association between NPO time and fluid volume needed in patients managed with GDFT. Thus, the use of a formula based on the patient's weight per unit time (ml/kg/hr) for fluid rescuscitation may not be justified.