

The Value of Continuous Noninvasive Hemoglobin Monitoring in Intraoperative Blood Transfusion Practice during Abdominal Cancer Surgery

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ABSTRACT

Introduction: Patients undergoing major oncological surgery may suffer from severe bleeding. Sometimes, it is difficult to anesthesiologist to take decision about timing of administration blood products to such patients. The aim of this study is to evaluate the use of continuous noninvasive hemoglobin monitoring as a guide for blood transfusion practice. Methods: One hundred patients undergoing elective abdominal cancer surgeries were randomly allocated into two groups, Group I (n = 50): laboratory Hb was obtained at baseline (immediate preoperative), intraoperative (when to suggest transfusion triggering value) and immediate postoperative. Group II (n = 50): The probe of Masimo for SpHb monitoring was applied immediately after induction of anesthesia at the index finger. Laboratory Hb was obtained at baseline (immediate preoperative), intraoperative (when to suggest transfusion triggering value) and immediate postoperative. Results: A number of transfused units of RBC were significantly lower in SpHb group than in control group (p value < 0.05), and a number of saved RBC units were significantly higher in SpHb group than in control group (p value < 0.001). The correlation between Lab Hb and SpHb was highly significant between baseline Lab Hb and baseline SpHb (r = 0.698, p < 0.001). Similarly, Lab Hb before transfusion showed a significant correlation between SpHb before transfusion (r = 0.710, p < 0.001). On the contrary, there was a non-significant correlation between Lab Hb after transfusion and SpHb after transfusion (r = 0.045, p > 0.05). Conclusion: SpHb monitoring had clinically acceptable absolute and trend accuracy. SpHb monitoring altered transfusion decision making and resulted in decreased RBC utilization and decreased RBC costs while facilitating earlier transfusions when indicated.