Value of Continuous Noninvasive Hemoglobin Monitoring During Surgery

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Objective

To investigate the accuracy and practicability of pulse hemoglobin using continuous noninvasive hemoglobin measurement to provide reference for perioperative blood transfusion management.

Methods

Forty patients, at American Society of Anesthesiologists grade (ASA) Ⅰ or Ⅱ who undergoing elective abdominal surgery in our hospital during May to June 2012 were enrolled in this study. Time matched pulse hemoglobin (SpHb) and total hemoglobin were measured respectively with Masimo Radical SET and automatic blood analyzer and the results were compared to access their relevance and consistency.

Results

Based on obtained 180 pairs of data (tHb /SpHb), Pearson correlation analysis displayed that tHb and SpHb were in good correlation ($r = 0.894$) . Bland-Altman analysis showed SpHb to tHb values were in good consistence, with a range of -1.3 to 2.2 /dL.

Conclusion

Continuous noninvasive hemoglobin measurement is an accurate method to monitor hemoglobin level with better timeliness compared with conventional intermittent blood sample analysis. It is helpful in blood management during surgery.