

Evaluation of Noninvasive Hemoglobin Measurements in Trauma Patients

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Background

Reliable, accurate, noninvasive, and continuous determination of hemoglobin would be an important advance in the care of trauma patients. The aim of this study was to evaluate the utility of the Masimo Radical 7 device in severely injured trauma patients.

Methods

Highest level trauma activation patients were enrolled over a 1-year period. Laboratory hemoglobin values were compared with Masimo hemoglobin values using Bland-Altman analysis.

Results

A total of 525 patients were enrolled in the study. Comparison of 861 paired values from 418 patients showed a variance of 3.89 to -3.84 g/dL, showing a nonsignificant correlation between Masimo hemoglobin and laboratory hemoglobin values.

Conclusions:

The Masimo Radical 7 system evaluated in this study holds promise, but it is not ready to be used as an initial noninvasive evaluation tool in the acute treatment of severely injured trauma patients. There was a poor correlation between Masimo hemoglobin and laboratory hemoglobin and large numbers of missing data. On the basis of the poor correlation, the Masimo Radical 7 device cannot currently be used to guide transfusion therapy.