

Continuous hemoglobin monitoring in pediatric trauma patients with solid organ injury.

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BACKGROUND/PURPOSE: Hemoglobin monitoring is required in pediatric trauma patients with solid organ injury. We hypothesized that noninvasive hemodynamic monitoring (NIHM) represents an effective, safe alternative to laboratory hemoglobin (LabHb) monitoring in clinically stable patients.

METHODS: A retrospective cohort study was conducted regarding pediatric trauma patients (<18 years old) with blunt solid organ injury over six consecutive months. Continuous NIHM was initiated at the time of admission, and LabHb measurements were obtained per institutional guidelines. Measurements were correlated within two hours of assessment and patient outcomes were analyzed.

RESULTS: Twenty-one patients met inclusion criteria and had evaluable data. Blunt trauma was the exclusive mechanism of injury, and mean injury severity score was 16.6 for the cohort. Bland Altman analysis showed an average deviation of 0.80 g/dL between NIHM and LabHb values for all data pairs. Measurement trends were highly correlated in patients with stable hemoglobin levels and those requiring blood transfusion.

CONCLUSIONS: NIHM demonstrated clinically acceptable accuracy when following hemoglobin trends in the defined pediatric trauma patient population. Slight variances between NIHM and LabHb values were occasionally noted, but did not affect clinical management. Continuous NIHM represents a potentially valuable adjunct to traditional laboratory hemoglobin monitoring.