Extended Abstract

# Quantitative blood loss: a validation study

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## Objective

To determine if quantitative blood loss would correlate to predicted blood loss based on change in blood concentration of hemoglobin.

## Methods

We performed a retrospective cohort study including a total of 820 deliveries at a Midwestern tertiary care center between September 2019 through December 2018 after implementation of a EMR based quantitative blood loss calculator tool used in all deliveries. All subjects regardless of gestational age, parity, or number of fetuses were included if they had delivery blood loss recorded within our EMR quantitative blood loss calculator. Additional inclusion criteria included record of pre-delivery and postpartum hemoglobin values, with postpartum hemoglobin recorded at least 24 hour post-delivery to allow time for equilibration. Exclusions included cesarean hysterectomy, dilation and evacuation, cases where quantitative blood loss was not properly recorded, or key data was missing. Modified Brecher's formula was utilized for calculated blood loss. Pearson's correlation coefficient was then used to analyze the statistical significance of CBL to QBL. Subgroup

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analysis for vaginal deliveries, cesarean deliveries, maternal weight regardless of delivery type, and gestational age was performed. Finally, a multi-sample test of equality of correlation coefficients was done to compare subgroup to determine if there was significant difference between any of these variables.

## Results

Pearson's correlation coefficient was not found to be significant between estimated and calculated blood loss regardless of the amount of blood loss, delivery type, gestational age, or maternal weight. Multiple sample test of equality failed to find any significant differences between subgroups. The strongest correlations were found in deliveries with blood loss greater than 1500 cc with correlation coefficient of 0.2502 P 0.18. Correlations were otherwise poor with P values ranging from 0.18-0.99.

## Conclusion

The correlation between calculated blood using modified Brecher's formula showed poor overall correlation to quantitative blood loss. There was a higher correlation at blood loss greater than 1500 cc which is where estimated blood loss has been shown to be most poor.[1-7] Possible reasons for this poor correlation include maternal factors influencing hemoglobin levels, gestational age, error in blood loss calculation, inaccuracy of Brecher's formula in pregnancy.

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