

Novel use of HEMAsavR™ technology for Blood Salvage at the Time of Vaginal Delivery in Patients at High Risk for Postpartum Hemorrhage

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BACKGROUND

Postpartum Hemorrhage (PPH) is the leading cause of maternal morbidity and mortality worldwide and incidence is on the rise.(1).

Autologous transfusion of filtered blood collected at the time of vaginal postpartum hemorrhage (PPH) is safe and eliminates the risk of donor blood transfusion (2).

OBJECTIVE

This pilot study assesses the feasibility and potential benefit of salvaging blood at the time of vaginal delivery in patients at high risk for PPH.

STUDY DESIGN

- 50 patients were recruited. Waiver of consent was obtained from the IRB.
- Patients with history of post partum hemorrhage (PPH), grand multiparity, multiple gestation, large for gestational age fetus, polyhydramnios, prolonged labor (>18 hours of oxytocin), or known fibroid uterus were included.
- HEMAsavR (TM) suction canister was used to collect blood loss.
- Gem 5000 blood gas analyzer was used to determine the Hematocrit of the blood collected.
- Using the Hematocrit and the total volume in the canister, we calculated the estimated percentage of a unit of blood that could be auto transfused.

RESULTS

- Mean age was 34.5 (SD 5.5)
- All patients were multiparous, with a median parity of 5.76 (SD 2.5)
- Mean gestational age was 38.8 weeks (SD 1.5)

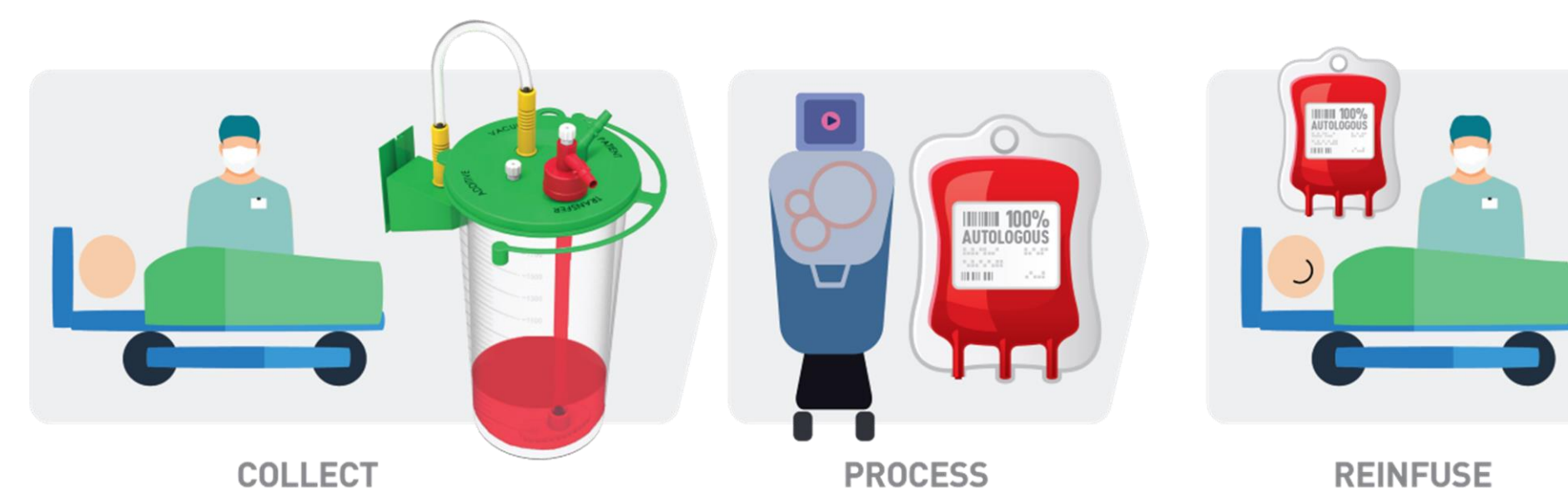
Age (years)	34.5 (SD 5.5)
Gestational Age (weeks)	38.8 (SD 1.5)
Parity	5.7 (SD 2.5)
Race/ethnicity	
Non-Hispanic Black	1 (2%)
Non-Hispanic White	49 (98%)
Insurance	
Private	18 (36%)
Public	32 (64%)
Comorbidities	
Chronic hypertension	2 (4%)
Preexisting Diabetes	1 (2%)
Chronic anemia	5 (10%)
Cardiovascular disease	3 (6%)
History of PPH	7 (14%)
Prophylactic anticoagulation	3 (6%)
None	37 (74%)
Obstetric Complications	
Gestational Diabetes	3 (6%)
Severe Preeclampsia	2 (4%)
None	45 (90%)

Table 1. Demographics

- Mean quantitative blood loss (QBL) was 161cc
- There were no cases of peripartum hemorrhage
- QBL and sample hematocrit (Hct) could not be calculated in six cases. Reasons included suction malfunction, arrest of dilation resulting in cesarean, precipitous delivery and insufficient blood loss.
- Mean Hct of a cell salvage unit (pRBC) is ~55% (3) and the volume of a pRBC unit is 250cc.
- On average, the use of HEMAsavR resulted in salvage of 35% of a unit that would be available for autologous transfusion.

Baseline Hematocrit %	35.2 (SD 1.1)
Mean QBL (cc)	161.0 (SD 153.6)
Uterotonics	
Hemabate	6 (12%)
Methergine	31 (62%)
Misoprostol	3 (6%)
Mean Sample Hct (%)	14.7 (SD 5.0)
Mean Calculated Percent of a Unit of Blood Salvaged for Autotransfusion	34.6%

Table 2. Delivery Characteristics



CONCLUSIONS

- Autotransfusion of vaginally shed blood after wash and filtration has been shown to be safe.
- We found the implementation of the blood collection system to be feasible on our labor and delivery unit and easy to perform.
- In our high risk cohort of pregnant persons, the use of the HEMAsavR device allowed for salvage of > 1/3 of a unit of pRBC.
- Postpartum anemia is common and been associated with an increased risk of postpartum depression, fatigue, and impaired cognition, and has also been shown to negatively impact maternal-infant bonding and the production of breastmilk (4,5).
- Further studies should be performed to evaluate the potential benefit of autologous blood transfusion in postpartum recovery.

CLINICAL RELEVANCE

Future use of autologous transfusion of vaginal blood may provide a safe and effective way to manage peripartum hemorrhage and a possible intervention in anemic patients postpartum.

ACKNOWLEDGEMENTS



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