

SGA neonatal outcomes in anemic gravid patients: does treatment in pregnancy improve neonatal birthweight?



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Introduction

- Small for gestational age (SGA) is defined as a neonate with a birth weight less than 10th percentile for gestational age
- SGA neonatal outcomes are associated with increased risks of stillbirth, preterm delivery, neonatal morbidity/mortality, and cognitive delay in childhood
- Maternal anemia is a preventable etiology of SGA
- SGA anemia is preventable with adequate prenatal care and identifying disparities in social determinants of health

Methods

- A retrospective cohort study was initiated for deliveries at Touro Infirmary from 2018–2021
- Hemoglobin and hematocrit values were recorded upon intake into prenatal care and on admission for delivery
- Of the 393 charts randomly selected from 2018–2021, 365 patients had hemoglobin (Hgb) levels available for both prenatal care in the first trimester and at the time of delivery
- Patients were classified as anemic if they had a hemoglobin of ≤ 11 g/dL
- SGA was defined by neonatal birth weight $< 10\%$ for gestational age
- Descriptive statistical analyses were performed thus far on this initial cohort of patients selected for our pilot study

Purpose

1. Determine the prevalence of anemia in all patients delivering at our community hospital
2. Understand the likelihood of SGA outcomes in anemic patients
3. Determine if treatment of anemia during pregnancy improves the rate of appropriate neonatal birthweight

Results

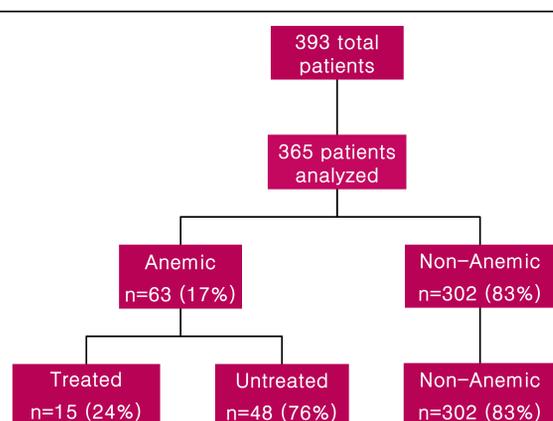


Figure 1 – Breakdown of the study population. The flowchart shows the groups that were used to compare the various results. First, the anemic group was compared to the non-anemic group. The anemic group was further broken down based on whether patients were treated for anemia. The treated anemic, untreated anemic, and non-anemic groups were then compared.

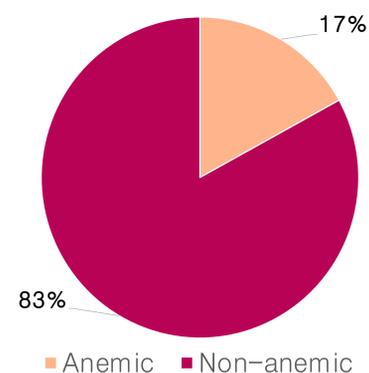


Figure 2 – Prevalence of anemia in the overall patient population. The chart shows the percentage of patients analyzed that were anemic and those that weren't based on the initial hemoglobin value measured at the first prenatal visit.

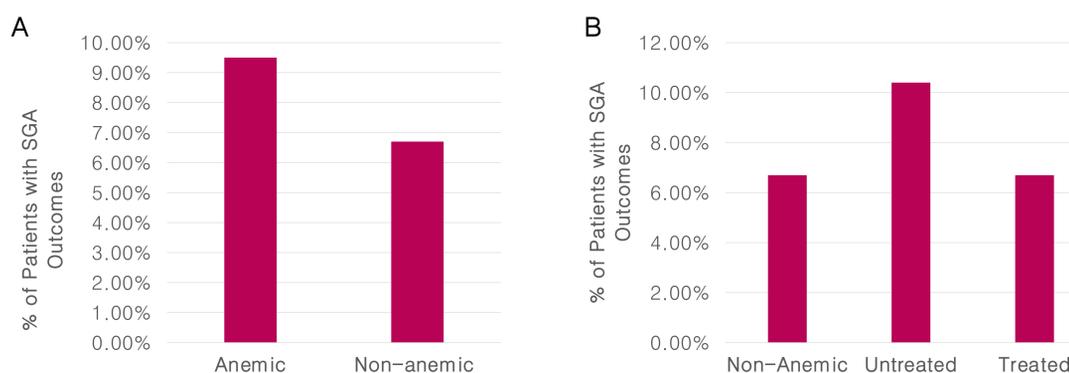


Figure 3 – Prevalence of SGA outcomes among patient groups. (A) Comparing the prevalence of SGA outcomes in the anemic versus non-anemic group. (B) Comparing the prevalence of SGA outcomes in the non-anemic, untreated anemic, and treated anemic groups.

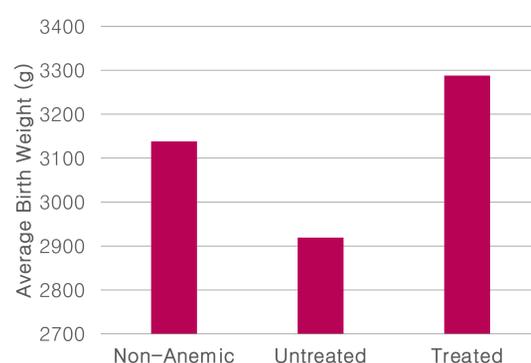


Figure 4 – Average birth weights. Comparing the average birth weights among non-anemic, untreated anemic, and treated anemic patient groups.

	Untreated	Treated
Age	34	32
Parity	4.6	3.4
Government Insurance	86.6%	75.9%

Table 1 – Demographics among anemic patients. The table illustrates the average age, average parity, and the percentage of patients that have government insurance among the untreated anemic and treated anemic groups.

Results

- Overall, the average hemoglobin upon intake into prenatal care versus time of delivery was stable (11.9 vs 11.2 g/dL, respectively)
- Of the total population, 17% of patients (n=63) were anemic (measured at first prenatal visit) (Figure 2)
- Anemic patients were more likely to have SGA neonatal outcomes compared to patients without anemia (9.5% versus 6.6%, respectively) (Figure 3A)
- Patients with untreated anemia were more likely to have SGA neonatal outcomes than patients with treated anemia and without anemia (10.4% vs 6.7% and 6.7%, respectively) (Figure 3B)
- Patients with treated anemia had a higher average birth weight (3288g) than both patients with untreated anemia (2919g) and without anemia (3138g) (Figure 4)
- Patients with inadequate treatment of their anemia were more likely to be older, have higher parity, and possess government issued insurance as compared to those with treated anemia [Age: 34yo vs. 32yo; Parity: 4.6 vs 3.4, Government insurance: 86.6% vs 75.9%]

* Treated anemia – initially anemic at the onset of pregnancy with improvement of Hgb > 1.5 g/dL by the time of delivery
 * Untreated anemia – initially anemic at the onset of pregnancy without improvement of Hgb > 1.5 g/dL by the time of delivery

Conclusion

- Initial assessment of SGA outcomes in anemic patients delivering at Touro Infirmary revealed that adequate treatment could potentially improve neonatal birthweights

Future Considerations

- Will continue to collect data to increase the sample size
- What are barriers to patients receiving adequate prenatal care?
- Which anemia treatments are patients being recommended (PO iron versus IV iron)? How does this affect patient adherence to treatment?
- Addressing the risks of SGA outcomes, how effective are the current early detection practices?