GESTATIONAL CARRIER PREGNANCY AND POSTPARTUM HEMORRHAGE: ASSESSMENT OF AGE-SPECIFIC INTERACTION

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Background
Research exploring adverse obstetrical outcomes in GCs is limited, but several non-comparator studies have reported PPH rates ranging from 1.9 to 14.7%[1]. Given the potentially severe complications associated with PPH, including an increase in maternal morbidity, further exploration of these findings is warranted.
Objective
Our goal was to assess the age-specific interaction of the association between GC pregnancy and PPH.
Materials and Methods
This was a pre-planned secondary analysis of previous investigations. The Healthcare Cost and Utilization Project's National Inpatient Sample was assessed to examine hospital deliveries from 2017-2020 (n=14,312,619). The exposure was GC status (n=1965). Inverse probability of treatment weighting cohort was created with pre-pregnancy factors to mitigate the differences between the GC and non-GC groups. In the weighted cohort, the association of GC and PPH was assessed per age strata (<30, 30-34, 35-39, and >-40 years). Analysis was executed according to the extent of gestation (singleton or multifetal gestations).
Results
The rate of PPH was 12.3% in GC pregnancies and 4.1% in non-GC pregnancies. In the singleton cohort, odds of PPH at hospital delivery among GC compared to non-GC pregnancies were elevated in all age groups and increased with age: <30 years, 6.3% vs 3.9%, OR 1.65 (95%CI 1.03-2.62); 30-34 years, 12.2% vs 4.0%, OR 3.30 (95%CI 2.32-4.70); 35-39 years, 19.0% vs 4.4%, OR 5.12 (95%CI 3.70-7.09); and >40 years, 20.7% vs 5.0%, OR 4.93 (95%CI 2.01-12.12). In the multi-fetal gestation cohort, odds of PPH at hospital delivery among GC compared to non-GC was only elevated in the youngest age group: <30 years, 21.4% vs 9.0%, OR 2.75 (95%CI 1.45-5.22); 30-34 years, 10.2% vs 10.1%, OR 1.00 (95%CI 0.43-2.34); 35-39 years, 11.8% vs 11.5%, OR 1.03 (95%CI 0.23-4.49); and 0% vs 14.1%.
Conclusion
The results of the current study suggest that risks of PPH in GC pregnancies may vary based on patient age and extent of gestation. Among singleton gestations, the odds of PPH were significantly higher for all age groups and increased with advancing age. The American Society for Reproductive Medicine (ASRM) guidelines suggest that GCs are between 21 and 45 years of age[2]. Given our findings of a 5-fold higher odds of PPH in singleton GC pregnancies for the 35-39 and >40 age groups, we submit that further investigation into the safest age range for GCs is warranted.
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References:
1. Matsuzaki, S., et al., *Obstetric Characteristics and Outcomes of Gestational Carrier Pregnancies*. JAMA Network Open, 2024. 7(7): e2422634.

2. *Recommendations for practices using gestational carriers: a committee opinion.* Fertility and Sterility, 2022. 118(1): p. 65–74.