



Association of Concurrent Opioid and Stimulant Use on Perinatal Outcomes

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Introduction

- The rise of the opioid epidemic has coincided with an increase in stimulant use among people with opioid use disorder (OUD).
- In the non-obstetric population, concurrent use of opioids and stimulants increases the risk for overdose, hospitalizations, and poor response to substance use treatment.
- Additionally, perinatal opioid use affects almost 4 million pregnancies annually and has become a leading cause of maternal mortality.
- Despite the public health relevance, there is limited safety data on opioid and stimulant co-use in pregnancy.

Objective

To assess the impact of opioid and stimulant co-use in pregnancy on maternal and neonatal outcomes.

Methods

- This is a retrospective cohort using California linked vital statistics and hospital discharge data from 2008-2019.
- We included singleton, live-born infants with a gestational age of 23-42 weeks.
- Opioid-related diagnosis and stimulant-related diagnosis during pregnancy were identified using ICD-9 and ICD-10 codes from hospital discharge data.
- Chi-squared and multivariable logistic regression were utilized for statistical analyses.
- All analyses were conducted using STATA version 17.

References

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Co-use of stimulants and opioids in pregnancy is associated with increased adverse perinatal outcomes compared to opioid use alone.

Conclusion

- A total of 8,795 pregnant patients with opioid use were included, of which 1,935 (22%) had co-use with opioids and stimulants.
- Compared to opioid use alone, there is a higher risk of adverse perinatal outcomes with combined stimulant co-exposure.
- The strengths of this study include the large sample size and diverse state-level data. Although necessary to identify cases, the use of ICD codes for drug-related diagnoses is a limitation, leading to ascertainment bias.
- To our knowledge, this is the first study to examine the impact of prenatal opioid and stimulant co-use on maternal and neonatal outcomes.

Results

Fig 1. Percentages of perinatal outcomes between co-use with opioids and stimulants compared to opioid use alone

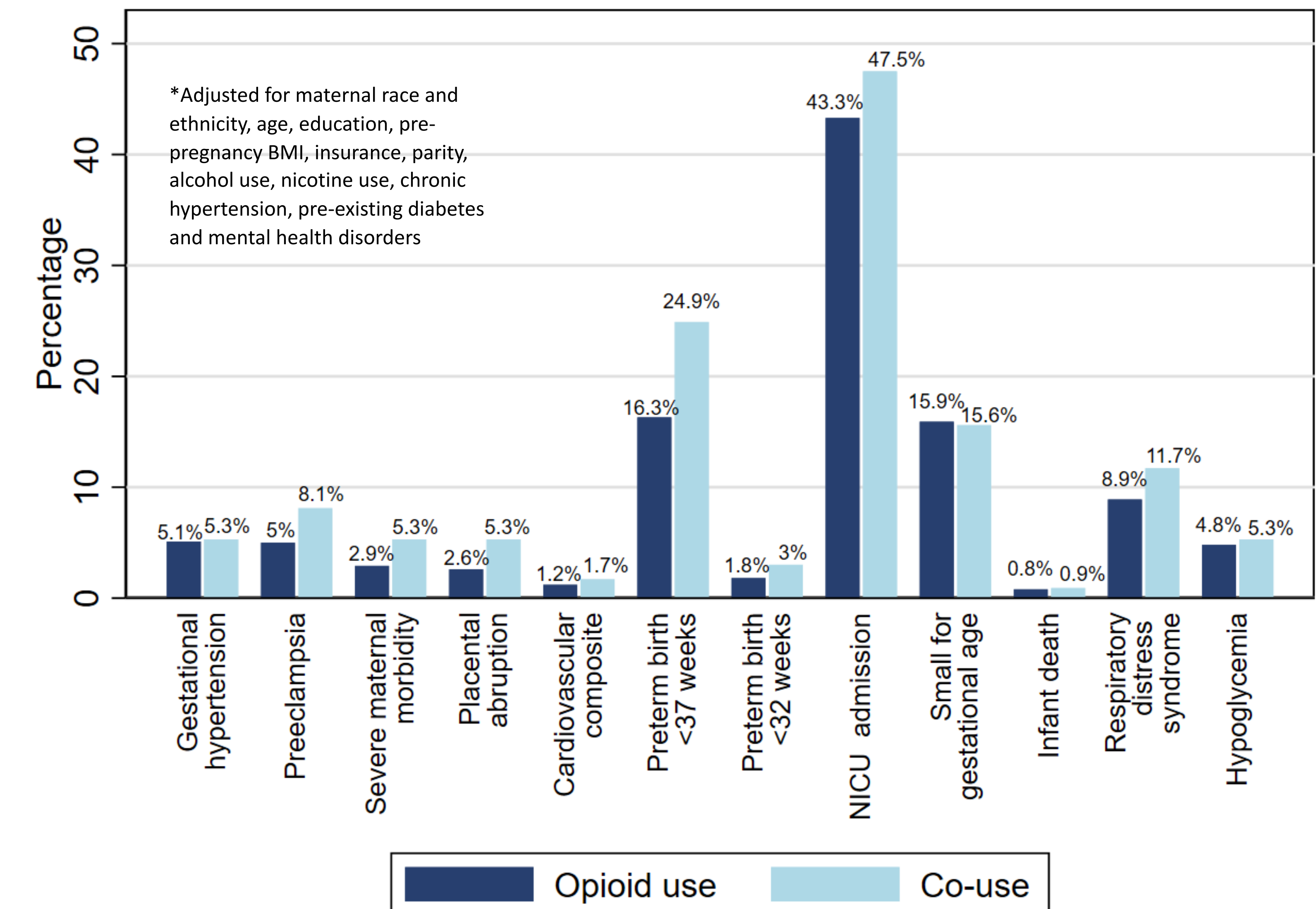


Table 1. Multivariable Poisson regression models showing adjusted risk ratios for the adverse perinatal outcomes

| Characteristic | Total N=8,795 | Opioid use alone | Co-use | aRR (95% CI)* |
|--------------------------|---------------|------------------|-------------|-------------------|
| Gestational HTN | 455 (5.2%) | 352 (5.1%) | 103 (5.3%) | 1.01 (0.79, 1.27) |
| Preeclampsia | 499 (5.7%) | 343 (5.0%) | 156 (8.1%) | 1.61 (1.33, 1.96) |
| SMM | 303 (3.4%) | 200 (2.9%) | 103 (5.3%) | 1.71 (1.33, 2.20) |
| Placental abruption | 284 (3.2%) | 181 (2.6%) | 103 (5.3%) | 1.81 (1.39, 2.34) |
| Cardiovascular composite | 112 (1.3%) | 79 (1.2%) | 33 (1.7%) | 1.60 (1.06, 2.42) |
| PTB <37 weeks | 1,599 (18.2%) | 1,118 (16.3%) | 481 (24.9%) | 1.41 (1.27, 1.56) |
| PTB <32 weeks | 185 (2.1%) | 126 (1.8%) | 59 (3.0%) | 1.41 (0.97, 2.03) |
| NICU admission | 3,886 (44.2%) | 2,967 (43.3%) | 919 (47.5%) | 1.02 (0.96, 1.08) |
| SGA | 1,396 (15.9%) | 1,094 (15.9%) | 302 (15.6%) | 0.84 (0.75, 0.96) |
| Infant deaths | 70 (0.8%) | 52 (0.8%) | 18 (0.9%) | 1.03 (0.55, 1.94) |
| RDS | 834 (9.5%) | 608 (8.9%) | 226 (11.7%) | 1.25 (1.07, 1.46) |
| Hypoglycemia | 432 (4.9%) | 329 (4.8%) | 103 (5.3%) | 1.06 (0.84, 1.34) |

HTN = hypertension, SMM = severe maternal morbidity, PTB = preterm birth, RDS = respiratory distress syndrome