Differences in Dosing Strategies and Perinatal Outcomes for Pregnant Patients on Buprenorphine Compared with Methadone

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Introduction

There is limited data on the necessity of dose adjustments for appropriate control and treatment of pregnant patients on maintenance medications for opioid use disorder (MOUD) with methadone or buprenorphine and how these dose adjustments may affect maternal and neonatal outcomes.

Objectives

The main objective of this study were to evaluate the necessity of dosing alterations during pregnancy across different MOUD. Secondarily to compare perinatal outcomes across the different MOUD groups.

Study Design

- Retrospective cohort study
- Inclusion criteria:
  - Opioid use disorder (OUD) on MOUD
  - Delivered at SBUH between January 2017 and July 2023
- Statistical methods: Chi-square, student t-tests, non-parametric test when necessary and multivariable regression analysis with statistical significance defined as $p < 0.05$.

Results

- 362 patients were identified as taking MOUD
  - Buprenorphine/buprenorphine-naloxone (71%) versus Methadone (29%)
- More patients in the ***methadone group required dosing increases*** during pregnancy than patients in the buprenorphine group (78.1% vs 48.5%, p<0.001) (Figure 1)
- Patients utilizing methadone initiated prenatal care later, had more active substance use during pregnancy, had lower postpartum visit compliance, had lower neonatal birth weights, and had more instances of NOWS requiring morphine (all variables, p<0.01) (Table 1)
- While there was no difference between groups on psychiatric diagnoses, the buprenorphine group was more likely to utilize any psychiatric medication (p=0.03), however no difference specifically in gabapentin use
- In a regression model, ***methadone was the most important predictor of NOWS requiring morphine*** (OR 2.83, 95%CI 1.51-5.28), however gabapentin use and preterm birth were also significant predictors (Table 2)

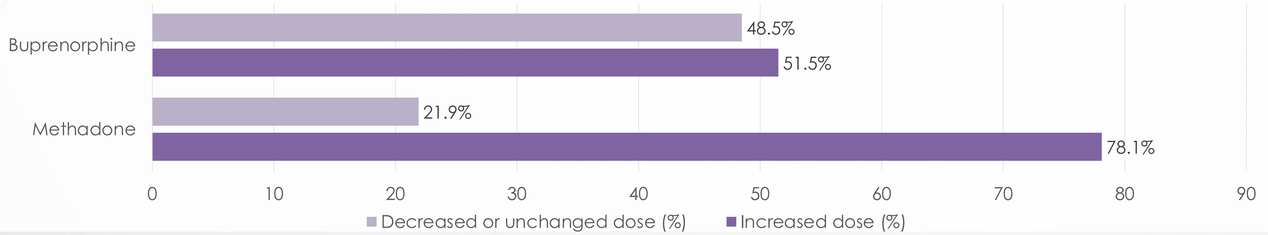
Table 2: Antenatal variables in prediction of NOWS requiring morphine

	Odds Ratio	95% CI	p value
Gabapentin use	**3.55**	**1.43- 8.79**	**0.006**
Active substance use during pregnancy	1.29	0.70-2.38	0.41
Birth weight (g)	1.00	0.99-1.00	0.35
Preterm Birth (<37 weeks)	**2.46**	**0.95-6.38**	**0.06**
MOUD: Methadone	**2.83**	**1.51-5.28**	**0.001**
Any MOUD Increased During Pregnancy	1.51	0.83-2.75	0.18
Number of prenatal visits	0.93	0.85-1.01	0.10

Table 1: Perinatal Outcomes Across Buprenorphine vs. Methadone Groups

	Buprenorphine (n=257)	Methadone (n=105)	P-value
Pregnancy induced hypertension	34 (13.2)	14 (13.6)	0.92
Gestational diabetes	16 (6.2)	5 (4.9)	0.63
Fetal growth restriction	14 (5.4)	5 (4.8)	0.79
Any obstetric complication	22 (8.6)	9 (8.6)	0.99
Preterm birth (<37 weeks)	33 (12.9)	20 (19.2)	0.12
Cesarean delivery	111 (43.7)	50 (48.1)	0.45
Birth weight (g)	**3020 (± 615)**	**2810 (±586)**	**<0.01**
NOWS requiring morphine	**55 (21.4)**	**50 (47.6)**	**<0.01**
NICU Admissions	155 (60.8)	70 (68.0)	0.20
Infant hospital length of stay (days)	12 (±20.2)	14.9 (±13.1)	0.16
Postpartum visit compliance	**52 (20.4)**	**18 (17.7)**	**<0.01**
Relapse postpartum	8 (3.6)	6 (7.4)	0.21

Figure 1: Percentage of Patients with Changes in Doses Antepartum



Conclusion

Overall, in our single institution cohort, evidence suggests use of buprenorphine over methadone may prevent the need for medication increases during pregnancy and is associated with fewer poor neonatal outcomes.