Comparison of Opioid Maintenance Therapy (OMT) on Prenatal and Postnatal Growth Effects

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Background

- Opioid use disorders (OUD) in pregnancy are associated with adverse pregnancy outcomes including: neonatal abstinence syndrome, NICU admission, prolonged hospital stay, intrauterine growth restriction, postnatal growth impairment, and fetal demise
- These adverse outcomes become more prevalent when pregnant women receive suboptimal treatment with various OMT options

Objectives

- To compare methadone and buprenorphine OMT effects on prenatal and postnatal growth parameters.

Study Design

- Retrospective cohort study using medical record data from a single academic center between 2007 and 2017
- Inclusion criteria: women with a singleton pregnancy currently receiving OMT with either methadone or buprenorphine
- Exclusion criteria: women with a pre-viable delivery, multiple gestation pregnancy, or an anomalous fetus incompatible with life
- Comparison of the two OMT groups for measurement differences in head circumference % (HC), abdominal circumference % (AC), HC/AC ratio, and postnatal HC %
- Data was analyzed using Wilcoxon-Mann-Whitney test, chi-square test, and logistic regression.

Results

Table 1: Ultrasound parameter outcomes

Outcome	Buprenorphine N=120	Methadone N=162	*P*-value
HC	30.5 ± 27.0	23.2 ± 22.1	0.082
AC	50.9 ± 28.7	43.6 ± 30.7	0.123
HC/AC ratio	1.0 ± 0.06	1.0 ± 0.11	0.610
Postnatal HC%	**39.2 ± 28.8**	**28.0 ± 24.6**	**<0.001**

Data presented mean ± standard deviation or as n (%).

Table 2: Newborn outcomes

Outcome	Buprenorphine N=79	Methadone N=77	*P*-value
Birth weight	**3206.0 ± 554.2**	**2876.5 ± 587.2**	**<0.001**
Delivery GA (weeks)	**39.0 ± 2.1**	**37.8 ± 2.5**	**<0.001**
Antenatal HC ≤10%, Postnatal HC ≤10%	8 (10)	14 (18)	0.148

Data presented mean ± standard deviation or as n (%).

- 282 cases were included in the analysis: 43% (n=120) received buprenorphine and 57% (n=162) received methadone
- Patients in the buprenorphine arm were more likely to deliver at a later gestational age (GA) week (39.0 vs 37.8, p<0.001) and have a larger birth weight (3206g vs 2877g, p<0.001)
- The other baseline demographics for both groups were similar in age, parity, race and BMI
- Patients in the buprenorphine cohort were significantly more likely to have a larger postnatal HC% (39.17 vs 29.97, p<0.001)
- Logistic regression modeling found that postnatal HC% remained significantly different (p = 0.03) even after controlling for race, OMT prescriber, delivery GA, and birth weight
- Comparison of the antenatal parameters: HC, AC, HC/AC ratio were found to be similar in both groups (Table 1)
- The antenatal HC% and postnatal HC% (p=0.148) comparisons were similar (Table 2)

Conclusion

- When compared to buprenorphine, patients treated with methadone OMT had significantly smaller postnatal HC%
- Antenatal ultrasound measurements did not differ amongst OMT groups

References

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