

Risk Factors Associated with Severe Neonatal Abstinence Syndrome Requiring Morphine



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INTRO:



Management of OUD with opioid maintenance therapy (OMT) has significantly improved maternal and neonatal outcomes, however, neonatal withdraw symptoms often occur. The aim of the study was to identify which maternal and neonatal characters were most associated with severe NAS requiring morphine treatment.

METHODS:

1. Retrospective cohort study identified maternal/neonatal dyads through the institutions' Maternal Opioid Management Support (MOMS) program from 2017 to 2020
2. Inclusion:
 - Women receiving OMT (methadone or buprenorphine)
 - Singleton pregnancies ≥ 36 weeks gestation
3. Primary outcome: Neonatal abstinence syndrome (NAS) requiring morphine treatment
4. Maternal demographics, pregnancy behaviors, and medication exposure were collected along with maternal and fetal outcomes
5. Statistical analysis, including logistic regression modeling, was performed with significance levels of <0.05 using R Studio (V1.2.5042)

RESULTS:

- 208 neonates exposed to OMT in utero
- 181 (87%) developed NAS
 - 68 (33%) were admitted to the NICU
 - 48 (26.8%) required NAS morphine treatment
- Birth weight ($p=0.005$) and active drug use in pregnancy ($p=0.016$) were the only variables that remained significantly associated with morphine treatment in multivariable logistic regression analysis

Birth weight and active drug use in pregnancy play larger roles in the severity of NAS than the type or dosage of OMT the neonate was exposed to in utero



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RESULTS:
Table 1: Univariate Analysis for NAS requiring Morphine

	NAS Requiring Morphine		p- value
	Yes*	No*	
Age (yrs)	29.5 (4.4)	31.1 (5.2)	0.054
BMI (kg/m ²)	30.3 (6.0)	31.1 (6.4)	0.48
Caucasian	46 (100)	117 (89)	0.15
Employed	5 (25)	19 (23)	1
Single/Unmarried	39 (81)	104 (79)	0.47
Multiparous	13 (27)	49 (37)	0.27
Psychiatric Med			0.54
- None	29 (24)	88 (75)	
- One	12 (28)	31 (72)	
- Two or more	7 (37)	12 (63)	
Tobacco Use	29 (78)	72 (73)	0.72
Active Drug Use	17 (39)	21 (17)	<0.01
OMT			<0.01
- Buprenorphine	21 (17)	104 (83)	
- Methadone	27 (50)	27 (50)	
High Dose OMT	17 (35)	88 (67)	<0.01
OMT Prescriber			0.03
- Obstetrician	7 (15)	39 (84)	
- Methadone/Pain Clinic	39 (33)	78 (67)	
Maternal Co-morbidities	10 (21)	26 (20)	1
Adequate Prenatal Care	26 (54)	68 (52)	0.92
Initial Trim of Care			0.27
- First	12 (24)	39 (76)	
- Second	9 (41)	13 (59)	
- Third	27 (26)	79 (74)	
Delivery Gestational Age (wks)	38.4 (1.4)	38.9 (1.2)	0.14
Neonate Gender			0.41
- Male	22 (24)	71 (76)	
- Female	26 (30)	60 (70)	
Fetal weight (g)	2890 (463)	3181 (449)	<0.01

*n(%) or mean(SD)

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