Differences in hospital length of stay between neonates exposed to buprenorphine vs methadone in utero

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NOAMA Clinical Innovations Opportunities Fund
Presenter Disclosure

**Presenter:** Dr. Sarah Fernandez

“Potential for conflict(s) of interest: Not Applicable”
Introduction

Background: Opioid dependence affects up to 30% of pregnancies at TBRHSC and treatment of NAS is the leading cause for admission to NICU.

Objectives: To characterize the LOS in hospital and NAS treatment parameters for neonates following in utero exposure to:

- Buprenorphine
- Methadone
- Other opioids
Introduction

Provincial Council for Maternal and Child Health (2016) guidelines:

- “Methadone Maintenance Treatment (MMT) is the standard of care for the management of opioid use disorders in women during pregnancy.”

- “Buprenorphine Maintenance Treatment (BMT) may be considered as an alternative to methadone for the management of opioid use disorders in women during pregnancy.”
Methods

- Retrospective chart review of EMR at TBRHSC of infants born from January 1, 2012 to December 31, 2014 with in utero exposure to:
  - Buprenorphine
  - Methadone
  - Non-buprenorphine, non-methadone opioid

- Exclusion Criteria:
  - Preterm delivery
  - Major congenital anomaly
  - Significant metabolic/genetic condition
  - Severe pre-eclampsia
Data Flow for Participant Inclusion

1367 Mother-infant dyads identified from medical records between 2012-2014

Inclusion criteria not met:
- 702 no opioid exposure
- 10 born in 2011
- 2 born outside TBRHSC

Exclusion criteria met:
- 254 preterm delivery
- 13 major congenital anomaly
- 7 significant metabolic/genetic condition
- 1 severe pre-eclampsia

- 60 dyads exposed to buprenorphine
- 60 dyads exposed to methadone
- 60 dyads exposed to other opioids
## Results

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Buprenorphine</th>
<th>Methadone</th>
<th>Difference (p Value)</th>
</tr>
</thead>
</table>
| Length of Stay (days)                                | 8.7 (7.3-10.1) | 14.5 (11.9-17.1) | 5.8 (2.2-9.4)  
  p = 0.001                                          |
| Day of Life of Initiation of Morphine Therapy (days)  | 2.6 (2.2-3.0)  | 1.9 (1.4-2.5)   | N/A  
  p = 0.173                                          |
| Length of Morphine Therapy (days)                    | 4.3 (2.9-5.6)  | 10.4 (7.7-13.0) | 6.1 (2.5-9.7)       
  p < 0.0005                                          |
| Need for Adjuvant Phenobarbital Therapy              | 4 (6.7%)       | 21 (35%)        | N/A  
  p <0.0005                                          |
Results

- On average morphine therapy was started on day of life 2 for all neonates.
- On average maternal LOS was 4-5 days regardless of exposure.
- Maternal separation from infants was up to 5-12 days while the infant was receiving treatment for NAS.
Results

- Mothers in the buprenorphine group were more likely than mothers in the methadone group to:
  - Have a lower level of education
  - Identify as Indigenous
  - Live somewhere rural or remote
  - Test negative for hepatitis B, C, or HIV
  - Less likely to be involved with CPS

- There were no other statistically significant differences between mothers in the groups
Results

- Neonates in the buprenorphine group were more likely than neonates in the methadone group to:
  - Be larger for gestational age
  - Have a larger head circumference at birth

- There were no other statistically significant differences between neonates in the groups
Jones at al 2010:

- Study in 175 pregnant inner city women, typically addicted to heroin
- Buprenorphine versus methadone use in pregnancy:
  - 7d shorter length of stay in hospital
  - 6d shorter duration of treatment with morphine
Conclusions

Retrospective data suggests neonates with in utero exposure to buprenorphine experience:

- Shorter LOS in hospital
- Fewer days of treatment with morphine
- Less use of phenobarbital

Ontario provincial guidelines should be updated to recommend buprenorphine as first line for replacement therapy in pregnancy
References


Thank you!

Questions?