Opioid Addiction and Dependence in Pregnancy

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Disclaimer and Disclosure

- Information provided today is combination of other’s research and my clinical experience.
- I have no financial gains to disclose.
- The opinions shared in this presentation are mine and do not reflect those of my employers.
Some of the things we will cover today...

- Discuss opioid addiction trends in Minnesota.
- Discuss the identification of opioid addicted pregnant patients.
- Discuss co-morbidities associated with opioid addiction.
- Discuss safe care of the pregnant opioid dependent woman.
Why are we talking about this today?

- Opioid abuse and dependence is on the rise both locally and nationally.
- The new “Gateway.”
- Abuse and addiction of these drugs are a major threat to the well-being of pregnant women and children - both unborn and born.
Why are we talking about this today?

- The care and treatment of pregnant opioid dependent patients is counter-intuitive to most patients and clinicians.

- This epidemic is growing at a rate that medical and societal systems can not match pace to.
Opiate vs Opioid

- **opiate** - narcotic analgesic derived from a opium poppy (natural)

- **opioid** - narcotic analgesic that is at least part synthetic, not found in nature

- “other opiate” - term used by state and federal reporting agencies to described any non-heroin opioid; usually diverted pharmaceuticals
Minnesota Resident Chemical Dependency Treatment rates for Heroin, 2000-2016

Per 1,000 of Population

Source: DAANES, PMQI, MN DHS 2017
Minnesota Admissions for American Indians for Heroin

Female

Male
Heroin vs. Other Opiate Admission for Pregnant Women, 1998-2016

Number of admissions/yr

Heroin vs. Other Opiates

Source: DAANES, PMQI, MN DHS 2017
Primary Drug of Abuse for Pregnant Women 2010 - 2014

- Heroin
- Other Opiates
- Alcohol
- Methamphetamine
Opioids

All compounds related to opium – originates in the poppy plant.

- Natural
  - Morphine and opium

- Semi-synthetic
  - Hydrocodone (Vicodin), oxycodone (Percocet) and heroin

- Fully Synthetic
  - Methadone, fentanyl, carfentanil, and buprenorphine (Subutex)
Opioids are a highly effective pain medication.

Clinical use of opioids is considered to pose minimal risk to mother or fetus.

Pregnancy Class “B”
Language

- DSM-IV vs DSM-5
- Addiction vs Substance Use Disorder
<table>
<thead>
<tr>
<th>Dependence</th>
<th>Addiction</th>
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<tbody>
<tr>
<td>□ Physical withdrawal symptoms</td>
<td>□ Physical withdrawal symptoms</td>
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<tr>
<td>□ Tolerance</td>
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<td>□ Used larger amounts/longer</td>
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<td>□ Repeated Attempts to Quit/Control Use</td>
<td>□ Repeated Attempts to Quit/Control Use</td>
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<td>□ Much Time Spent Using</td>
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<td>□ Physical/Psychological problems related to use</td>
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<td>□ Hazardous use</td>
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<td>□ Social/Interpersonal problems related to use</td>
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<td>□ Neglected major roles to use</td>
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Risk Factors Lending to Opioid Abuse

- 50-50 environment and genetics
- Environmental
  - Availability and peer use
  - Sexual partner use
  - History of victimization
  - Physical and sexual abuse*/trauma
Pain Management

At the most basic and fundamental aspect of the brain, physical, and emotional pain cannot be differentiated.
Rates of Opioid Abuse in Pregnancy

2005 study

- 15 – 44 years old
- Community dwelling (not in hospital, incarcerated, homeless)
- Primary opioid of choice – pills

Women self reported opioid abuse in 1% of pregnancies

Newborn stool (meconium) studies found opioids in 8.7% of newborns
Heroin vs. Other Opiate Admission for Pregnant Women, 1998-2016

Number of admissions/yr

Heroin ▲ Other Opiates

Source: DAANES, PMQI, MN DHS 2016
Imagine the Likely Rates...

- Consider the women who are homeless...
- Consider the women who don’t get prenatal care...

What I’m seeing in clinic...

...roughly 20% of pregnant patients admit to illicit use of opioids.
Screening and Identification

- 30% - 50% of general population have unintended pregnancies
- 86% of pregnancies in opioid dependent women are unintended
- Not the usual presentation/stereotype of addiction
- Few validated screening tools for anything other than alcohol
- Urine Toxicology (UTOX)
- Most effective...
  - Combination of Screening Questions, Education, and UTOX
Universal Screening

  - Retrospective cohort study of 2956 women between May 2012 and November 2013

- Previous Screening Triggers
  - Positive UTOX in pregnancy, suspicion of drug use, insufficient prenatal care, placental abruption, STI’s, admission from “justice center”

- Universal Screening
  - 60% (96 of 159) drug screens were positive for opioids
  - 20% (19 of 96) opioid positive tests were recorded in mothers WITHOUT screening risk factors
Know Your Drug Screens

- Opiate Assay will screen for:
  - heroin
  - morphine
  - hydrocodone
  - hydromorphone
  - codeine

- It will often miss:
  - oxycodone
  - methadone
  - buprenorphine
  - other synthetic and semi-synthetic opioids
Risk of Opioid Addiction in Pregnancy

What is the actual risk of opioid addiction in pregnancy?

Not an easy answer...
Comorbidities and Confounding Factors

- 95% smoke cigarettes
- High rates of illicit amphetamine/stimulant use
- High rates psychiatric disorders
- High rates of poor nutrition
- High rates of Complex Social problems
Effects of Comorbidities

- Increased risk of spontaneous abortion
  - cigarette smoking and complex social issues
- Increased risk of still birth
  - cigarette smoking, amphetamines, stimulants, and complex social issues
- Increased risk of preterm birth
  - cigarette smoking, amphetamines, stimulants, poor nutrition, and complex social issues
- Increased risk of low birth weight
  - cigarette smoking, psychiatric disorders, poor nutrition, and complex social issues
- Increased risk of “Sudden Infant Death Syndrome”
  - cigarette smoking
Moral of the story

It is extremely difficult to identify true risks of opioid abuse in pregnancy and the majority of negative outcomes may be from use of other drugs and social impacts.

*More comorbidities means higher risk of negative outcomes.*
True Danger of Opioids in Pregnancy?
True Danger of Opioids in Pregnancy?

Withdrawal
Dangers of Withdrawal to the Fetus

Fetal hypoxia leading to increased rates of...

- Spontaneous abortion
- Placental insufficiency
- Hypertensive emergencies
- Pre-term labor and birth
- Poor fetal growth
- **Fetal death**
The Realization...

What I’m seeing in clinic...

Most women don’t know the extent of their addiction until they become pregnant...
Symptoms of Pregnancy

- Irritability
- Nausea and/or Vomiting
- Low back pain
- Stuffy nose
- Bowel changes
- Fatigue/Tired
- Insomnia
- Breast Pain
Symptoms of Withdrawal

Irritability
Nausea and/or Vomiting
Muscle aches
Watery Eyes and/or Runny nose
Diarrhea
Yawning
Insomnia
Fever
Goosebumps
Sweating

*Miserable, but rarely life threatening to an adult.*
Withdrawal Symptoms or Discomforts of Pregnancy?

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## Withdrawal Symptoms or Discomforts of Pregnancy?

**Withdrawal**
- Irritability
- Nausea and/or Vomiting
- Muscle aches
- Watery Eyes and/or Runny nose
- Diarrhea
- Yawning
- Insomnia Flushing/Hot Flashes
- Fever
- Goosebumps
- Sweating

**Pregnancy**
- Irritability
- Nausea and/or Vomiting
- Low back pain
- Stuffy nose
- Bowel changes
- Fatigue/Tired
- Insomnia
- Flushing/Hot Flashes
- Breast Pain
Dangers of Continued Abuse

Maternal risk taking and dangerous behavior patterns

Usual use pattern
  - Use a lot, stop, withdrawal, use again, etc...

Intra-Uterine...
  - Causes repeated cycles of fetal intoxication and withdrawal
  - Creates unstable environment for fetus and effects efficacy of placental function

*Micro-Withdrawals*
Goal of Medical Intervention

Maternal Stabilization and Safety

Stable intrauterine environment

Decrease Co-morbidities
“Biggest concern with opioid agonist medication during pregnancy is the potential for occurrence of neonatal abstinence syndrome - an entirely treatable condition”

Interventions

- Narcan
- Methadone Assisted Withdrawal
- Methadone Maintenance
- Subutex/Suboxone
- Psychosocial Support
Narcan
(naloxone)

CONTRAINDICATED in opioid dependent pregnant women.
- Unless maternal overdose/lifesaving measure.

Reverses.blocks opioids.

Puts someone into immediate withdrawal state.

Can be dangerous for the newborn if maternal use not identified.
Methadone

- FDA approved in 1972 for treatment of opioid dependence
- Goal: replaces illicit drug use, avoids withdrawal, and eliminates drug craving
- Methadone lasts 27 hours in system, allowing for once a day treatment
  - Avoids the micro-withdrawal
- Steady and known supply of drug/medication decreases risk-taking behavior to obtain drug
- Increases maternal safety
Methadone Assisted Detox

Intent

- Goal is to get women off of opioids.
- Transition from illicit opioids to methadone and slowly wean off.
- No opioids means no Neonatal Abstinence Syndrome.
Methadone Assisted Detox

Reality

- Increase in fetal deaths
- 40%-100% relapse rate
- Twice the rate of + drug screens at time of delivery*
- Six fewer prenatal care appointments*
- NO difference in Neonatal Abstinence Syndrome

*than recommended model
Methadone Maintenance

- Current Medically Recommended Option
- Should be considered medical management to avoid fetal and maternal injury
  - These women ARE following the best treatment modality available and following ACOG recommended treatment recommendations.
Methadone Maintenance

- Daily dose at licensed facility
- 30% dose increase often needed in 3rd trimester
- Often coordinated with addiction treatment or, at the least, support services by trained staff
A Metro Collaboration

- Multi-Discipline and Front-Line Staff collaborative work
  - Community Clinic based Certified Nurse Midwife
  - Addiction Medicine/Methadone
  - Social Services/Support
  - In-Patient support during birth and post partum

- Between 2010 and 2015, only 6% (5 of 77) of newborns placed out of home because of maternal illicit opioid use

- Minnesota Department of Human Services Commissioners Circle of Excellence Award Recipients
Subutex/Suboxone
(buprenorphine/buprenorphine plus naloxone)

- Mixed agonist-antagonist opioid receptor modulator
- 30% dose increase often needed in 3rd trimester
- Can decrease in Neonatal Abstinence Syndrome (NAS)
- Fairly good results with non-pregnant patients
- Current “mainstream” modality of Medication Assisted Treatment only model is good at curbing withdrawal, but does little to curb addiction behavior
  - Leading us back to NAS and the co-morbidities.
- Very promising initial studies, but additional work needed around this treatment in pregnant patients.
In 2013 and 2014 the Tribe had 48 children on the Reservation born positive for heroin each year.

January - June, 2015 - on track to match numbers of previous two years.

June 2015 - Began daily dosing of Subutex via telemedicine and daily support services.

July 1st- December 15th, 2015 - 0 (zero) positive births for heroin.

Expanded to treat fathers
WHO 2014 Guidelines:

Pregnancy women dependent of opioids should be encouraged to use opioid maintenance treatment whenever available rather than to attempt opioid detoxification. Opioid maintenance treatment in this context refers to either methadone maintenance treatment or buprenorphine maintenance treatment.
Psychosocial Support

- Intervention on all illicit drug use
- Assistance with social problems and connection to community support
- Assistance with medical and psychological problems
- Connection to supportive abstinence network
- Encouragement to seek and connection with prenatal care
- Culturally appropriate support
Benefits of Methadone Maintenance and Psychosocial Support

- Up to three times less mother’s illicit opioid use
  - Decreasing those co-morbidities
  - One- to two-thirds of women do continue to abuse drugs or alcohol
- Increases prenatal care
  - Better newborn outcomes
- Up to three times less risk of low birth weight
- Mother more likely to maintain custody of child
Successful Methadone Maintenance

Multi-Disciplinary Team...

- Addiction Medicine Clinic Team
- Social Workers and Counselors
- Community Support Networks and Services
- Obstetrics Providers
Other Thoughts...

- Methadone or Buprenorphine should NOT be considered pain management
  - These medications deal with opioid DEFICIT
- Criminal prosecution has NOT decreased drug use in pregnant women.
Motivating Women to Seek Help

- Be respectful of their courage.
- Offer them tools to make the decisions they need to vs. telling them what they need to do.
- Give them accurate information. Or get them to someone who can.
- Engage their family - the power of the ultrasound.
- Establish connection with/refer them to services that specialize in addiction in pregnancy.
- Reframe perceptions of social support systems.
  - Project Child
Where The System Falls Down

Post Partum support and care

Access and support to outlying/non-metro areas

The non-addicted opioid dependent patient.
Summary

- Opioid abuse and dependence pose multi-faceted threat to pregnant women and unborn children.
- The greatest opioid-linked risk to fetal well-being is withdrawal.
- Withdrawal avoidance is the preferred method of increase maternal and fetal safety and well-being.
- A multidisciplinary approach to intervention is best method of supporting pregnant women’s abstinence from illicit drugs and decreasing co-morbidities.
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MOTHER Study: Child Outcomes up to 36 months

- N=97
- No pattern of differences in physical or behavioral development to support medication superiority
- No pattern of differences for infants treated for NAS v infants who did not receive treatment for NAS
- Results indicate children born in the MOTHER study are following a path of normal development in terms of growth, cognitive and psychological development

MOTHER Study: Smoking and NAS

**Total Amount of Morphine Needed to Treat NAS**

- Non-Smoking: 1.5
- Below Average Smoking: 2
- Average Smoking: 3.2
- Above-average Smoking: 5

**Total Length of Hospital Stay**

- Non-Smoking: 8.9
- Below Average Smoking: 10.5
- Average Smoking: 13
- Above-average Smoking: 16.2

**Number of Days Medicated for NAS**

- Non-Smoking: 3.7
- Below Average Smoking: 4.4
- Average Smoking: 6.3
- Above-average Smoking: 8.4

**Neonatal Weight at Birth**

- Non-Smoking: 3149
- Below Average Smoking: 3075
- Average Smoking: 2978
- Above-average Smoking: 2881

OLS and Poisson regression analyses were used to test average daily number of cigarettes smoked in the past 30 days at α = .05, adjusting for both Medication Condition and Site. Below-average cigarette smoking was defined as 6 cigarettes/day (-1 SD), average cigarette smoking as 14 cigarettes/day (Mean), and above-average cigarette smoking as 21 cigarettes/day (+1 SD). Jones et al., *JAD*, 2013
MOTHER Study: Buprenorphine v. Methadone

- Compared with methadone-exposed neonates, buprenorphine-exposed neonates
- Required 89% less morphine to treat NAS
- Spent 43% less times in the hospital
- Spent 58% less time in the hospital being medicated for NAS
- Both medications in the context of comprehensive care produces similar maternal treatment and delivery outcomes

Jones et al., N Engl J Med. 2010
Buprenorphine: Misuse/Diversion Risks

- Encourage understanding of diversion and misuse while in treatment as *indicators of medication non-adherence* and evaluate and treat therapeutically.

- Need careful public policy understanding the cutting off treatment access or greatly reducing it will not eliminate or guarantee less diversion and misuse.

- Restricting treatment may adversely affect mortality rates.

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