Opioid Use Disorder & Pregnancy

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ARIZONA STATE UNIVERSITY SUBSTANCE ABUSE SUMMIT
Objectives

- Identify the use of opioids in the population of women
- Identify the results of infant exposure to opioids
- Describe and discuss Neonatal Abstinence Syndrome along with recognizing the short and long-term effects
- Express the importance of breast-feeding
Women and Opioid Use

- Public Health Problem

- Prescribed medications disproportionately

- Complications are caused by the use and misuse of the prescriptions
Women and Opioid Use

- Complications:
  1. Insomnia
  2. Gastrointestinal medical issues
  3. Death because of the mixture with the prescription and alcohol
  4. Dependence
Other Drug Information

- Women between the ages of 25 – 54 are most likely prescribed pain medications and overdose

- Chronic pain (back, migraine headaches, facial pain, abdominal pain, fibromyalgia and neck…)

- Delivery
Opioids

- Analgesic
- Pain inhibitor
- Physiological effects on the respiratory system
- Effects brain function and the nervous system
- Releases a histamine causing skin irritations
- Secondary amenorrhea
Opioids

- Half – Life of 24 -36 hours
- Withdrawal symptoms can occur
Withdrawal

- Confusion
- Hallucinations
- Delirium
- Urticarial vasculitis
- Muscle rigidity
- Myoclonus
- Vomiting
- Shaking

- Hypothermia
- Bradycardia
- Tachycardia
- Orthostatic hypotension
- Headache
- Urinary retention
- Diarrhea
- SweATING

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Withdrawal con’t

- Medically managed facility will oversee the detoxification stage

- Methadone, Buprenorphine (subutex)
Pregnancy

Reasons for lacking Pre-Natal Care
1. Amenorrhea
2. Homeless / lack of self-care
3. High Risk Behaviors
4. Medical Coverage
Pregnancy Warning Signs

- Complaining of nausea and not in active withdrawal
- Tender breasts
- Sensitive to unusual smells
- Extremely tired
OB / GYN Major Concerns

- Toxemia
- Communal infections
  - Hepatitis C
  - HIV
- Hypertension
- Miscarriages
- Death

- Stillbirths
- Low birth weight
- Small head circumference
- Early delivery
- Death
- High bilirubin levels

Mom

Infant
Pregnancy

- Focus on the fetus
- Focus on the safety and health of the mother
- Immediate precautions are taken
- Discussing the potential risks of opioid dependence
- Fetus is compromised during utero development resulting in congenital disabilities
Opioid Maintenance Therapy (OMT)

- Methadone
- Buprenorphine
- Suboxone (Naloxone and Buprenorphine)
- Subutex (Buprenorphine hydrochloride)
OMT’s

- Used to avoid withdrawal
- Maintain abstinence from heroin or other opioids that have compromised various life areas
- Used during pregnancy to provide safety for the pregnant woman and the fetus
OMT’s

According to the Substance Abuse and Mental Health Services Administration’s study in 2008

1. Pregnant animals were tested with Naloxone and the results were:
   a. Interference with skeletal development
   b. Increases fetal mortality
Precautions using pharmacotherapy

- Immediate precautions for women that are currently prescribed suboxone (Jones & Fiedler, 2015).

1. Immediate evaluation
2. Safely transferred to Buprenorphine (subutex)
Evaluation of the Pregnant Mom

- Discuss the potential fetal development risks
- Hospitalize the Mom for 24 – 72 hours to have a complete medical evaluation
- Monitor symptoms of withdrawal if OMT’s are not yet involved
Evaluation of the Pregnant Mom

- Identify the length of the pregnancy
- Identify if there have been other pregnancies, miscarriages or abortions
Choice of OMT

- Methadone
Methadone

- Gold Standard of treatment since the 1960’s for maintenance as well as to avoid withdrawal during detoxification
- Food and Drug Administration has categorized methadone as a Category C
  1. Lack of human studies
  2. The infant is born with difficulties that require intense medical attention
Methadone

- Committee on Health Care for Underserved Women and the American Society of Addiction Medicine 2012 advise:

1. The woman’s weight needs to be considered before the first dose
2. Consider if other drugs were administered along with the opioid
Infants are born with opioid acute withdrawal

Opioid Acute Withdrawal is called Neonatal Abstinence Syndrome (NAS)

Infants are born with the average weight
Choice of OMT

- Buprenorphine (Subutex)
Buprenorphine

- Infants are born with the average weight
- Born from 38 – 40 weeks
- Less traces of the opioid in the system
  1. tested through the infants urine, umbilical cord and meconium
- NAS is still present, but not as severe
- More Clinical trials are needed to identify the efficacy with a true comparison to methadone
Fetal Development Birth Defects (March of Dimes 2016)

- Developmental Delays
- Spina Bifida
- Hydrocephaly
- Glaucoma
- Gastrochisis
- Cleft palate
- Language
- Cognitive

- Congenital Heart Defects
  a. Conoventricular septal defect
  b. Hypoplastic left heart syndrome
  c. Atrial septal defect
  d. Tetralogy fallot
  e. Pulmonary valve stenosis
Fetal Development
Birth Defects

- The heart and the eyes develop within the first three months
- The embryo has been developing since conception and on the 22^{nd} day the brain is unprotected exposing to toxins
- On approximately the 22^{nd} day the heart is beating and the placenta has formed taking nutrition and possible toxins to the embryo
Delivery

- APGAR scores are administered to all infants born

A = Appearance
P = Pulse
G = Grimace
A = Activity
R = Respiratory
Delivery

APGAR Scores

- Each child is evaluated one and five minutes following birth and 10 minutes if there are medical concerns
- Each area score is 0-2 with all areas adding up to a possible score of 10
- A score that is average is 8-10
- A score below 8 requires immediate medical attention and a transfer to the Neonatal Intensive Care Unit (NICU) for a further evaluation
APGAR Scores for OMT’s

Scores *could be* below 8 for both methadone and buprenorphine
Neonatal Abstinence Syndrome (NAS)

- Also called infant exposure (opioids, benzodiazepines, and nicotine)
- Delicate time period is the first 24 hours
  1. Seizures
  2. Inconsolable crying
  3. Evaluation process using assessment tools specific for NAS infants
  4. Extended hospital stay
NAS

- Phenobarbital can be administered for the safety of the infant for seizure activity which is shown on a monitor.
- Symptoms can appear 3 hours to 12 days after birth.
- NAS can be found in children exposed to nicotine and benzodiazepines.
NAS

- Negatively affects:
  a. Neurological System
  b. Gastrointestinal System
  c. Autonomic System
NAS
Neurological System

- Irritability
- Staying awake for long periods
- Sleeping for short intervals
- High pitch cries for extended periods
- Sneezing often

- Stiff arms and legs
- Tremors
- Tremors with a moro reflex
NAS

Gastrointestinal System

- Compromised
- Vomiting
- Diarrhea
- Dehydration
- Inadequate weight gain
Gastroschisis
NAS
Autonomic System
- Inability to suck
- Fever
- Inability to maintain body temperature
- Inability to regulate blood pressure
The following assessments can be administered:

1. The Finnegan Neonatal Abstinence Scoring System
2. The Lipsitz Neonatal Drug Withdrawal Scoring system
3. The Neonatal Withdrawal Inventory
4. The Neonatal Narcotic Scoring Index
5. The Withdrawal Assessment Tool– Version 1
Finnegan Neonatal Abstinence Scoring System

- Administered every 4 hours
- The high critical score is 8 or above
- Pharmacology treatment will be administered
# Modified Finnegan Neonatal Abstinence Score Sheet

<table>
<thead>
<tr>
<th>System</th>
<th>Signs and Symptoms</th>
<th>Score</th>
<th>AM</th>
<th>PM</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Excessive high-pitched (or other) cry &lt; 5 mins</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Continuous high-pitched (or other) cry &gt; 5 mins</td>
<td>3</td>
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<td></td>
<td>Sleeps &lt; 1 hour after feeding</td>
<td>3</td>
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<tr>
<td></td>
<td>Sleeps &lt; 2 hours after feeding</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Sleeps &lt; 3 hours after feeding</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>Hyperactive Moro reflex</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Markedly hyperactive Moro reflex</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>Mild tremors when disturbed</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Moderate-severe tremors when disturbed</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Mild tremors when undisturbed</td>
<td>3</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Moderate-severe tremors when undisturbed</td>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Increased muscle tone</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Excoriation (chin, knees, elbow, toes, nose)</td>
<td>1</td>
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<tr>
<td></td>
<td>Myoclonic jerks (twisting/jerking of limbs)</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>Generalised convulsions</td>
<td>5</td>
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<tr>
<td></td>
<td>Sweating</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>Hyperthermia 37.2-38.3C</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>Hyperthermia ≥ 38.4C</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Frequent yawning (= 3-4 times scoring interval)</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Mottling</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>Nasal stuffiness</td>
<td>1</td>
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<tr>
<td></td>
<td>Sneezing (= 3-4 times scoring interval)</td>
<td>1</td>
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<tr>
<td></td>
<td>Nasal flaring</td>
<td>2</td>
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<tr>
<td></td>
<td>Respiratory rate &gt; 60/min</td>
<td>1</td>
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<tr>
<td></td>
<td>Respiratory rate &gt; 60/min with retractions</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Excessive sucking</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>Poor feeding (infrequent/uncordinated suck)</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Regurgitation (= 2 times during/post feeding)</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Projectile vomiting</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>Loose stools (curds/seedy appearance)</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Watery stools (water ring on nappy around stool)</td>
<td>3</td>
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<tr>
<td></td>
<td><strong>Total Score</strong></td>
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<tr>
<td></td>
<td><strong>Date/Time</strong></td>
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<tr>
<td></td>
<td><strong>Initials of Scorer</strong></td>
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</tr>
</tbody>
</table>

## Withdrawal Assessment Tool Version 1 (WAT-1)

### Patient Identifier

<table>
<thead>
<tr>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
</tr>
</tbody>
</table>

### Information from patient record, previous 12 hours

- **Any loose/watery stools**
  - No = 0
  - Yes = 1

- **Any vomiting/wretching/gagging**
  - No = 0
  - Yes = 1

- **Temperature > 37.8°C**
  - No = 0
  - Yes = 1

### 2 minute pre-stimulus observation

- **State**
  - SBS ≤ 0 or asleep/awake/calm = 0
  - SBS > + 1 or awake/distressed = 1

- **Tremor**
  - None/mild = 0
  - Moderate/severe = 1

- **Any sweating**
  - No = 0
  - Yes = 1

- **Uncoordinated/repetitive movement**
  - None/mild = 0
  - Moderate/severe = 1

- **Yawning or sneezing**
  - None or 1 = 0
  - > 2 = 1

### 1 minute stimulus observation

- **Startle to touch**
  - None/mild = 0
  - Moderate/severe = 1

- **Muscle tone**
  - Normal = 0
  - Increased = 1

### Post-stimulus recovery

- **Time to gain calm state (SBS ≤ 0)**
  - < 2 min = 0
  - 2 - 5 min = 1
  - > 5 min = 2

### Total Score (0-12)

**Withdrawal Assessment Tool (WAT-1) Instructions**

- Start WAT-1 scoring from the first day of weaning in patients who have received opioids and/or benzodiazepines by infusion or regular dosing for opioid dependency. The WAT-1 should be completed at least every 2 hours for the first 24 hours of weaning and then at least every 4 hours until the patient has been weaned for 24 hours and is considered to be stable.
Withdrawal Assessment Tool (WAT-1) Instructions

1. Start WAT-1 scoring from the first day of weaning in patients who have received opioids +/- benzodiazepines by infusion or regular dosing for prolonged periods (e.g., > 5 days). Continue twice daily scoring until 72 hours after the last dose.
2. The Withdrawal Assessment Tool (WAT-1) should be completed along with the SBS at least once per 12 hour shift (e.g., at 08:00 and 20:00 ± 2 hours). The progressive stimulus used in the SBS assessment provides a standard stimulus for observing signs of withdrawal.

Obtain information from patient record (this can be done before or after the stimulus):

- Loose/watery stools: Score 1 if any loose or watery stools were documented in the past 12 hours; score 0 if none were noted.
- Vomiting/wretching/gagging: Score 1 if any vomiting or spontaneous wretching or gagging were documented in the past 12 hours; score 0 if none were noted.
- Temperature > 37.8°C: Score 1 if the modal (most frequently occurring) temperature documented was greater than 37.8°C in the past 12 hours; score 0 if this was not the case.

2 minute pre-stimulus observation:

- State: Score 1 if awake and distress (SBS ≥ +1) observed during the 2 minutes prior to the stimulus; score 0 if asleep or awake and calm/cooperative (SBS ≤ 0).
- Tremor: Score 1 if moderate to severe tremor observed during the 2 minutes prior to the stimulus; score 0 if no tremor (or only minor, intermittent tremor).
- Sweating: Score 1 if any sweating during the 2 minutes prior to the stimulus; score 0 if no sweating noted.
- Uncoordinated/repetitive movements: Score 1 if moderate to severe uncoordinated or repetitive movements such as head turning, leg or arm flailing or torso arching observed during the 2 minutes prior to the stimulus; score 0 if no (or only mild) uncoordinated or repetitive movements.
- Yawning or sneezing > 1: Score 1 if more than 1 yawn or sneeze observed during the 2 minutes prior to the stimulus; score 0 if 0 to 1 yawn or sneeze.

1 minute stimulus observation:

- Startle to touch: Score 1 if moderate to severe startle occurs when touched during the stimulus; score 0 if none (or mild).
- Muscle tone: Score 1 if tone increased during the stimulus; score 0 if normal.

Post-stimulus recovery:

- Time to gain calm state (SBS ≤ 0): Score 2 if it takes greater than 5 minutes following stimulus; score 1 if achieved within 2 to 5 minutes; score 0 if achieved in less than 2 minutes.

Sum the 11 numbers in the column for the total WAT-1 score (0-12).

Breastfeeding

- ASAM encourages breastfeeding
- Medical professionals determine lactation eligibility
- NIH – methadone and buprenorphine excreted in human milk is extremely low
- Comforts NAS infants
Breastfeeding & NAS

- Promotes closeness
- Comforts the infant
- Skin to skin contact
- Increase maternal responses to infant cues
- Low percentage of recovering moms attempt breastfeeding
Breastfeeding Resources

- NIH 2015 – LactMed app

- Medsmilk.com
Tri-Core Breastfeeding Model

- Improving lactation support
- Maternal and staff lactation education
- Increasing maternal confidence in breastfeeding ability (self – efficacy)
- Busch et al, 2013
Long term effects of NAS

- Developmental Delays
- Language Delays
- Poor attention span
- Mirror neuron system (social cues)
- Gross motor coordination
NAS

- “Nightline from ABC News: Drug Dependent Infants Detox at East Tennessee Children’s Hospital NICU after their mothers were hooked on pain-killers” Reported by Juju Chang on July 11, 2012.

- [http://www.youtube.com/watch?feature=player_detailpage&v=2eP5EnFSG0c](http://www.youtube.com/watch?feature=player_detailpage&v=2eP5EnFSG0c)
Summary

- There is an epidemic for the use of opioids with women
- Neonatal Abstinence Syndrome is the result of in utero exposure to opioids
  a. Assessment
  b. Short – term & long – term effects
- Breast-feeding is highly encouraged
References

References

- Center for Disease Control and Prevention. National Center for Injury Prevention And control, Division of Unintentional Injury Prevention (July 2013).


References

References

- Nightline from ABC News: “Drug Dependent Infants Detox at East Tennessee Children’s Hospital NICU after their mothers were hooked on pain-killers” Reported by Juju Chang on July 11, 2012. http://www.youtube.com/watch?feature=player_detailpage&v=2eP5EnFSG0c
References


Conclusion

- Questions
- Concerns
- Comments
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