Neonatal Abstinence Syndrome

Epidemiology, diagnosis, management and prevention

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Disclosure Statement of Financial Interest

• I, Cynthia Thomas, DO NOT have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.
Objectives

• Discuss the etiology of Neonatal Abstinence Syndrome (NAS)
• Discuss the diagnosis and management of NAS
• Describe the epidemiology of NAS, particularly in northeast Tennessee
• Discuss the primary, secondary and tertiary prevention of NAS
• Discuss the role of pre-conceptual health and reproductive life planning, including Voluntary Reversible Long Acting Contraception (VRLAC), in the primary prevention of NAS
• Discuss information, resources and services available to support infants and families impacted by NAS
Etiology, diagnosis and management of Neonatal Abstinence Syndrome
What is NAS?

- Neonatal Abstinence syndrome (NAS) refers to a group of signs and symptoms that may occur in infants withdrawing from drug dependency following in-utero drug exposure.
- The most common substances causing NAS are the opiate class of drugs.
DEI vs. NAS

- All infants with a diagnosis of NAS are have been exposed to a substance which causes dependence in-utero and, therefore, can be characterized as drug exposed infants (DEI)
- NOT all infants with in-utero drug exposure will show signs and symptoms of withdrawal
- However, all infants with in-utero drug exposure are at risk for adverse outcomes
Prenatal Drug Exposure

- All pregnant women
- Pregnant women who use potentially harmful substances
- Infant with recognizable signs and symptoms
NAS - Etiology

• Infants exposed in-utero to substances that may cause dependence are potentially at risk of withdrawal following birth

• NAS may be related to:
  – Prescription drugs obtained with a prescription
  – Prescription drugs obtained without a prescription
  – Illicit drugs
NAS - Identification

• NAS is a **clinical** diagnosis

• NAS diagnosis based on:
  – History of exposure
  – Evidence of exposure:
    – Maternal drug screen
    – Infant urine, meconium, hair, or umbilical samples
  – Clinical signs of withdrawal (symptom rating scale)
Modified Finnegan's Neonatal Abstinence Scoring Tool.

<table>
<thead>
<tr>
<th>SYMPTOMS AND SYMPTOMS</th>
<th>SCORE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous High Pitched (or other) Cry</td>
<td>2</td>
<td>Daily Weight</td>
</tr>
<tr>
<td>Continuous High Pitched (or other) Cry</td>
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<tr>
<td>Sleeps &lt; 1 Hour After Feeding</td>
<td>3</td>
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<tr>
<td>Sleeps &lt; 10 Hours After Feeding</td>
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<tr>
<td>Sleeps &lt; 15 Hours After Feeding</td>
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<tr>
<td>Hyperactive Moro Reflex</td>
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<tr>
<td>Markedly Hyperactive Moro Reflex</td>
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<tr>
<td>Mild Tremors Disturbed</td>
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<tr>
<td>Moderate Severe Tremors Disturbed</td>
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<tr>
<td>Mild Tremors Undisturbed</td>
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<tr>
<td>Moderate Severe Tremors Undisturbed</td>
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<td>Increased Muscle Tone</td>
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<tr>
<td>Excoriation Specified Area</td>
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<tr>
<td>Mydriasis</td>
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<tr>
<td>Generalized Convulsions</td>
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<td>Tachypnea</td>
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<tr>
<td>Fever 100.4°F (37.9°C)</td>
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<tr>
<td>Fever &gt; 102°F (39.0°C)</td>
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<tr>
<td>Frequent Yawning (2-4 times/interval)</td>
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<tr>
<td>Nystagmus</td>
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<tr>
<td>Nasal Stuffiness</td>
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<tr>
<td>Sneezing (5-4 times/interval)</td>
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<tr>
<td>Nasal Hazing</td>
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<tr>
<td>Respiratory Rate &gt; 60/min</td>
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</tr>
<tr>
<td>Respiratory Rate &gt; 60/min with Respiration</td>
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<tr>
<td>Excessive Crying</td>
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<td>Poor Feeding</td>
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<td>Regurgitation</td>
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<td>Projectile Vomiting</td>
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<tr>
<td>Loose Stools</td>
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<tr>
<td>Watery Stools</td>
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</tbody>
</table>

TOTAL SCORE
INITIALS OF DOCTOR


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NAS - Diagnosis

Opioid withdrawal symptoms (CNS, GI, vasomotor):

- High pitched crying
- Excessive crying, inconsolability
- Difficulty sleeping
- Jerks, tremors, jitters, irritability
- Sweating
- Fast breathing, nasal flaring
- Excessive sneezing, yawning
- Fever
- Mottled color (patchy colored skin)

- Frantic, uncoordinated sucking (not in response to hunger)
- Difficulty feeding
- Vomiting
- Diarrhea
- Skin breakdown from loose stool/diarrhea
- Skin breakdown on knees, elbows, chin, nose
- Seizures
NAS - Management

- Initial management: CNS/GI/Respiratory/Vasomotor Support Measures
  - Minimize environmental stimuli
    - Low lighting
    - Low volume
    - Swaddling
  - Respond early to signals
  - Support adequate growth
    - Feedings
    - Sleep

- Pharmacologic therapy may be needed
  - Morphine vs. methadone, adjunctive medications
NAS - Management

- Goal of treatment during neonatal withdrawal is to alleviate short-term symptomatology to allow healthy feeding, growth and maternal bonding

NAS – Long-term outcomes

• No definitive long-term syndrome associated with neonatal opioid withdrawal
  – There are not currently sufficient long term studies to reliably predict long term outcomes

• Limited studies show:
  – Mixed outcomes of developmental assessment scores (hyperactivity, short attention span, memory and perceptual problems)
  – Resolution of seizures

• Confounding by social/environmental variables