



EAT, SLEEP, CONS OLE

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NEONATAL ABSTINENCE SYNDROME (NAS)

Neonatal Abstinence Syndrome is defined as the discontinuation of prolonged opioid exposure to a fetus. NAS has a variety of withdrawal symptoms caused by the increase in norepinephrine production related to the lack of opioid exposure (Wallman, 2018).

FROM 2000 TO 2014
INFANTS DIAGNOSED
WITH NAS
INCREASED BY 7-
FOLD. IT IS
ESTIMATED THAT IN
2014 MORE THAN
300,000 BABIES HAD
BEEN DIAGNOSED
WITH NAS AND THAT
HOSPITAL COSTS
WERE UPWARDS OF
\$500 MILLION
DOLLARS (JANSSON
& PATRICK, 2019).



Assessment is the first step in managing infants at risk for NAS.

- Obtaining and reviewing full maternal and newborn histories, including identifying drugs or medications being taken that can lead to withdrawal.
- Biological samples such as a cord segments, urine toxicology tests on mom and/or infant, meconium, or maternal blood tests can be used congruently to confirm drug exposure.
- This data may be limited related to time of exposure and time of testing and may result in false negatives (Wallman, 2018)

PREGNANCY AND OPIOID USE

Opioid dependence is from the passage of drugs across the placental barrier and is also dependent on the pharmacokinetic properties of different substances.

Substances that have major effects on the central nervous system are typically lipophilic and have low molecular weight allowing for rapid crossing from maternal to fetal circulation.

Once the drug has crossed the placenta, opioids tend to accumulate related to immature fetal kidney function and lack of enzymes used to metabolize the drugs.

When the infant is delivered the passage of opioids is stopped and the infant develops withdrawal.

Withdrawal symptoms can depend on a drug's half-life, the frequency, and dosage the mother was using.

The infant's own metabolism and excretion rate adds to the variance in withdrawal symptoms and/or severity from infant to infant (Hamden, 2017)



PERIOD OF
TIME YOUR
BABY NEEDS
MONITORING
IS DEPENDENT
ON EXPOSURE

- Minimum of 2 days for Cocaine
- Minimum of 2 days for short-acting narcotics like Morphine, Oxycodone, and Percocet
- Minimum of 4 days for barbiturates like Fioricet, and Amytal
- Minimum of 4 days for Heroin
- Minimum of 4 days for long-acting opioids like Methadone, Subutex, Suboxone

WHAT DOES WITHDRAWAL LOOK LIKE FOR NEONATES

Physical findings of NAS:

- tremors, jitteriness, myoclonic jerks
- poor sleep patterns
- excessive and/or high-pitched crying
- poor feeding which leads to poor weight gain
- excessive sucking/eating
- GI disturbances such as vomiting/diarrhea
- sneezing
- mottling
- tachypnea
- tachycardia
- temperature instability
- skin excoriation

(Wallman, 2018).

WITHDRAWAL SCORING SYSTEMS

- Withdrawal symptoms usually occur in the first 48-72 hours of life and NAS scales should be done systematically every 3-4 hours to evaluate the infant's symptoms.
- The Finnegan Neonatal Abstinence Scoring System (FNASS) is utilized to dictate care and implement pharmacologic therapies if withdrawal symptoms are not being well managed by supportive care. The FNASS assigns a numerical score based on 21 clinical findings weighed numerically (scoring 1-5) to determine the severity of withdrawal symptoms and evaluate the need for pharmacological treatment (Jansson & Patrick, 2019).
- The downfall with this assessment is that it is a subjective test and education is crucial in making sure staff are assessing neonates in a consistent and correct exam.
- Standard care based on this scoring system is that an infant is admitted to the NICU for three consecutive scores of 8 or greater or one score of 12 or greater.

Symptoms	Score
<i>CNS Symptoms</i>	
High-pitched cry	2
High pitched cry > 2 h	3
Sleeps less than 3 h after feeding	1
Sleeps less than 2 h after feeding	2
Sleeps less than 1 h after feeding	3
Mild tremors when disturbed	1
Marked tremors when disturbed	2
Increased muscle tone	2
Excoriation of skin	1
Myoclonic jerks in sleep	3
Generalized convulsion	5
<i>Vegetative symptoms</i>	
Sweating	1
Temperature 37.5–38.0 °C	1
Temperature > 38.0 °C	2
Frequent yawning	1
Mottling	1
Nasal stuffiness	2
Sneezing	1
<i>Gastrointestinal symptoms</i>	
Frantic sucking	1
Poor feeding	2
Regurgitation	2
Projectile vomiting	3
Loose stools	2
Watery stools	3
<i>Respiratory symptoms</i>	
Tachypnea > 60/min	1
Tachypnea > 60/min with retractions	2
Total (minimum 0, maximum 37)	



EAT, SLEEP, CONSOLE

In an effort to decrease medication use and admissions to the NICU, along with decreasing the length of stay and hospital costs associated with NAS a newer method of Eat, Sleep, Console has been included in management of infants.

The method has three assessments: **newborn feeding, sleep duration between feedings, and the ability to be consoled.** If infant is not able to breastfeed well or take 1 ounce or more bottle feeding, if they are not sleeping greater than an hour between feedings and/or not being able to be consoled within 10 minutes, a prn morphine dose can be administered. When appropriate breastfeeding and rooming in are encouraged to keep the mother-infant dyad intact (Dodds et al., 2019)



HOW TO
MINIMIZE
USE OF
MORPHINE
AND
OTHER
DRUGS

Rooming in with mom

Holding, cuddling, or rocking

Breastfeeding on demand

Swaddling

Non-nutritive sucking

Keep lights, noise and visitors to a minimum

Skin to skin contact

Gentle handling

Avoid waking baby



ESC
APPROACH
TO SCORING
WITHDRAWAL

Can infant eat more than one ounce per feed or breastfeed well?

NO

Can infant sleep more than one hour?

NO

Can the infant be consoled with 10 minutes?

NO

Is infant well managed? There are no further interventions necessary!

ES C APPROACH TO SCORING WITHDRAWAL

**Verify that all
nonpharmacologic
interventions are
being utilized**

**> Infant
not
improved**

**Rescue
dose
Morphine**

**> Infant
not
improved**

**Scheduled
morphine
dose**



MINIMIZE
PHARMACOLOGICAL
INTERVENTIONS



PHARMACOLOGIC TREATMENT

- Oral morphine is the first line drug for NAS
- Oral sucrose should not be used for withdrawal symptoms, but should still be used for painful procedures
- Phenobarbital is the next drug of choice if non-pharmacologic interventions and morphine dose is maximized without relief
- Gabapentin is a new and evolving therapy that has been used to treat neuropathic pain
- Clonidine is the third line drug therapy

BACK TO SLEEP

- We need to continue to emphasize that safe sleep is still necessary, including back to sleep, no thick or fuzzy blankets around baby's face, no co-bedding, no props or wedges in bed with baby.



THANK
YOU



Any questions?



Comments?



Insites?

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