NEONATAL ABSTINENCE SYNDROME

INTRODUCTION - Neonatal Abstinence Syndrome (NAS) is a term used to describe withdrawal in an infant born to a mother dependent on opioids or, occasionally, other drugs. The condition manifests with central nervous system irritability, autonomic overreactivity, and gastrointestinal tract dysfunction in the newborn. As of 2013, it is thought to affect approximately 6 out of every 1000 hospital births in the United States. [1]

CLINICAL SIGNS & DIAGNOSIS – The condition causes the following signs:

- High pitched cry & irritability
- Sleep & wake disturbances
- Tone or movement abnormalities
- Feeding difficulties
- Gastrointestinal disturbances
- Autonomic dysfunction
- Failure to thrive

The timing of these signs is variable, especially depending on the drug which was used or abused during pregnancy. In general, signs will appear anywhere from 24 – 120 hours after birth.

Diagnosis of NAS is generally made clinically. However, screening can be used if the diagnosis is in doubt; urine screening has low sensitivity because it usually only detects recent exposure. Meconium testing is more sensitive and specific than urine or hair sampling, and is generally preferred if available [2].

MANAGEMENT – Goals in management of NAS are to allow consistent weight gain and to allow the infant to interact with caretakers. Scoring systems allow pseudo-objective criteria for initiation, adjustment, and weaning of pharmacologic therapy:

- Finnegan Neonatal Abstinence Scoring System
- Lipsitz Tool
- Neonatal Withdrawal Inventory

These tools assess criteria such as time to sleep after feeding, reflex hyperactivity, tremors, tone, fever, yawning, sweating, feeding, vomiting, and loose stools, among others. Recommendations are to begin scoring immediately after birth and to rescore every 3-4 hours until the infant's discharge [3]. Infants should be observed for at least 4-5 days since potential for late-presentations of withdrawal.

Supportive care includes:

- Minimizing external stimuli (light, sound, touch)
- Rocking and swaying the infant
- Frequent small amounts of hypercaloric formula or human milk
- IV fluids, replacement of electrolytes, and NG tube if necessary

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Pharmacologic intervention can be used to control moderate to severe symptoms, but there have been no studies comparing withdrawal score thresholds with short-term outcomes. Many centers use 2 serial Finnegan scores ≥ 8 as a threshold.

American Academy of Pediatrics (AAP) guidelines indicate that opioids are the most commonly used 1st line agents for pharmacologic management of symptoms [4]. ***Morphine*** and ***methadone*** are the preferred opioids, according to the same report, although comparative studies and other evidence for effectiveness is lacking. There is also limited evidence on the superiority of dosing based on severity of symptoms versus a mg/kg basis. If symptoms are not controlled with an opioid alone, a second medication can be used to control symptoms. Limited evidence suggests that ***clonidine*** is effective at reducing the time needed for pharmacologic treatment, according to a 2016 systematic review [5]. However, surveys indicated that as of 2012, the majority of clinicians use ***phenobarbital*** as a second line agent.

References

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