

Leadership Connection 2018 (15-18 September)

Raising Awareness Concerning Neonatal Abstinence Syndrome Prevalence and Effects

Natalie Harper, SN

Indiana University School of Nursing, Indianapolis University-Purdue University Columbus, Columbus, IN, USA

Emily Duke, SN

Indianapolis University-Purdue University Columbus, Edinburgh, IN, USA

Neonatal abstinence syndrome (NAS) is a condition affecting newborns withdrawing from drugs and alcohol after birth (Stanford Children's Health, 2016). Incidences of NAS are becoming increasingly more prevalent across the United States (Winkelman, Villapiano, Kozhimannil, Davis, & Patrick, 2018). Approximately 14.4 per 1,000 babies were born addicted to drugs or alcohol in the United States in the year 2014 (Winkelman et al., 2018).

Furthermore, every 25 minutes an infant is born with NAS (Centers for Disease Prevention and Management, 2017). Contributing to the rising numbers of infants born with neonatal abstinence syndrome are the ever-increasing rates of individuals abusing drugs and alcohol while pregnant (Wiles, Isemann, Ward, Vinks, & Akinbi, 2014). Therefore, it has become extremely important for nurses working within this population to educate themselves both on the signs and symptoms of NAS, as well as treatments. The incidence of NAS has tripled nationally, affecting 47-57% of infants born to mothers on methadone or buprenorphine maintenance therapy (Wiles et al., 2014).

There are several additional factors that impact a baby born with NAS. These risk factors may include a lack of prenatal care, premature delivery, sexually transmitted infections, Hepatitis C virus, human immunodeficiency virus (HIV), cigarette smoking, fetal intrauterine growth restriction, and poor maternal nutritional status (Wiles et al., 2014). Neonatal babies experience immediate effects of withdrawals once born. These immediate effects can be neurological, gastrointestinal, autonomic signs, respiratory distress, and skin excoriation (Winkelman et al., 2018). These immediate effects are seen evident in the video titled *Incidence and Cost of Neonatal Abstinence Syndrome is Rising* (Winkelman et al., 2018). The neurological excitability symptoms comprise of tremors, irritability, increased muscle tone, and seizures (Wiles et al., 2014). Gastrointestinal dysfunction encompasses feeding difficulties, vomiting, poor weight gain (Wiles et al., 2014). The autonomic signs that NAS babies may experience include diaphoresis, nasal stiffness, mottling, as well as temperature instability (Wiles et al., 2014). According to Wiles et al., there has also been evidence of long term effects for those born with NAS. Researchers have noted an increased risk of readmission to the hospital during the first five years of a child's life (Wiles et al., 2014).

In addition to an increased prevalence of NAS, cost of neonatal abstinence syndrome has been on the rise. Medicaid is the primary payer of the NAS births and hospital stays. In fact, Medicaid paid for approximately 73.7% of NAS births in the year 2004 (Winkelman et al., 2018). Then, in 2014, 82% of NAS births were paid for by Medicaid (Winkelman et al., 2018). In 2011, in the state of Ohio alone, approximately \$70 million was spent on the treatment of NAS within the hospital setting (Witt, C. E., Rudd, K. E., Rivara, P. F., Hawes, S. E., & Weiss, N. S., 2017). Other hospital costs which are paid for by Medicaid include testing for drug use in pregnant women. Urine, meconium and umbilical cord tissue are the three main methods of testing in these situations (Wiles et al., 2014). Although each of these tests are similar in price, costing \$300-550, \$250-500, and \$400-800, they are crucial in the primary detection of detecting the potential of NAS early on (Wiles et al., 2014).

In light of the rising number of cases regarding NAS, nurses are being required to update their knowledge on the effects and treatments of drug and alcohol withdrawal in neonates. It is imperative that healthcare professionals keep up with the demands this condition continues to present. Nurses working in the area of maternal-fetal care must familiarize themselves with the early clinical signs of neonatal abstinence syndrome to promote the best possible outcome for newborns. Suffering from symptoms such as

hypersensitivity to stimuli, tremors, respiratory distress, impaired growth and development, many vital organ anomalies, and more, neonates within this population need intensive nursing care (Sommer et al., 2013). Nursing considerations might include more frequent assessments, reducing external stimulation as much as possible, specialized pharmacologic interventions, interventions focused on prevention of vomiting and aspiration, the use of swaddling to reduce self-stimulation, and initiation of consultation with lactation and child protective services when necessary (Sommer et al., 2013). Additionally, more research is needed to determine the long-term effects this condition will have on the neonatal population. All of these components come together to affect the care of this vulnerable and growing population.

References

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Title:

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Keywords:

clinical considerations, drug epidemic and neonatal abstinence syndrome

References:

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Abstract Summary:

This presentation focuses on the prevalence and associating factors of neonatal abstinence syndrome (NAS). Included is information regarding long-term effects, cost, and contributing factors. Additionally, the viewers will have access to educational material regarding nursing considerations and interventions in relation to caring for patients with NAS.

Content Outline:

1. Introduction

Neonatal abstinence syndrome (NAS) is a condition affecting neonates who are withdrawing from drugs and alcohol after birth (Stanford Children's Health, 2016). Incidences of NAS are becoming increasingly more prevalent across the United States (Winkelman, Villapiano, Kozhimannil, Davis, & Patrick, 2018). Approximately 14.4 per 1,000 babies are born addicted to drugs or alcohol in the United States in the year 2014 (Winkelman, Villapiano, Kozhimannil, Davis, & Patrick, 2018).

Furthermore, every 25 minutes an infant is born with NAS (Centers for Disease Prevention and Management, 2017). Contributing to the rising numbers of infants born with neonatal abstinence syndrome are the ever-increasing rates of individuals abusing drugs and alcohol while pregnant (Wiles, Isemann, Ward, Vinks, & Akinbi, 2014). Therefore, it has become extremely important for nurses working within this population to educate themselves both on the signs and symptoms of NAS, as well as treatments.

II. Body

A. Contributing Factors

1. Drug Rates in U.S. (Wiles, Isemann, Ward, Vinks, & Akinbi, 2014).

1. The incidence of NAS tripled nationally, affecting 47-57% of infants born to mothers on methadone or buprenorphine maintenance therapy.

2. Risk Factors (Wiles, Isemann, Ward, Vinks, & Akinbi, 2014).

1. Include lack of prenatal care
2. Premature delivery
3. Sexually transmitted infections
4. Hepatitis C virus
5. Human immunodeficiency virus
6. Cigarette smoking

7. Fetal intrauterine growth restriction
8. Poor maternal nutritional status

B. Effects

1. Immediate Effects (Wiles, Isemann, Ward, Vinks, & Akinbi, 2014).

1. Neurologic excitability
2. Tremors
3. Irritability
4. Increased muscle tone
5. Seizures
6. Gastrointestinal dysfunction
7. Feeding difficulty
8. Difficulty sucking
9. Vomiting
10. Poor weight gain
11. Autonomic signs
12. Diaphoresis
13. Nasal stuffiness
14. Mottling
15. Temperature instability
16. Respiratory distress
17. Skin excoriation.

3. Long Term Effects

1. An increased risk of readmission during the first five years of life.

C. Cost

1. Also on the rise are the costs surrounding NAS.

1. State costs (Witt, C. E., Rudd, K. E., Rivara, P. F., Hawes, S. E., & Weiss, N. S., 2017).

1). In the year 2011, the treatment of NAS was associated with over \$70 million in charges in the state of Ohio alone.

a. Hospital charges for urine, meconium and umbilical cord tissue toxicology screening are relatively comparable costing \$300-550, \$250-500 and \$400-800 (Wiles, Isemann, Ward, Vinks, & Akinbi, 2014).

b. Medicaid Cost (Winkelman, Villapiano, Kozhimannil, Davis, & Patrick, 2018).

1). The primary payer

2). Medicaid covered 73.7% of NAS births in 2004

3). 82% of NAS births in 2014

D. Nursing Considerations

1. It has become extremely important for nurses working within this population to educate themselves both on the signs and symptoms of NAS, as well as treatments.

1. The Neonatal Intensive Care Unit Network Neurobehavioral Scale was developed for use in neonatal intensive care units in order to better understand long-term implications of intrauterine exposure to opioids (Wiles, Isemann, Ward, Vinks, & Akinbi, 2014).

2. Physical Withdrawal/Clinical Manifestations

a. Opiates

1. Rapid changes in mood
2. - Hypersensitivity to noise and external stimuli
3. - Dehydration
4. -Poor weight gain

b. Heroin

1. Low birth weight and SGA
2. Decreased Moro reflexes
3. Hypothermia/Hyperthermia

c. Methadone

1. Increased incidence of seizures
2. Higher risk of sudden infant death syndrome
3. Higher birth weight
4. Sleep pattern disturbances

d. Marijuana

1. Preterm birth
2. Meconium staining

e. Amphetamine

1. Preterm or SGA
2. Drowsiness
3. Jitteriness
4. Sleep pattern disturbances
5. Respiratory distress
6. Frequent infections
7. Poor weight gain
8. Emotional disturbances
9. Delayed growth & development

f. Fetal Alcohol Syndrome

1. Facial anomalies: mouth with small suck, small teeth, cleft lip or palate
2. Prenatal and postnatal growth retardation
3. Abnormal palmar creases and irregular hair
4. Developmental delays and neurologic abnormalities
5. Deafness

6. Sleep disturbances
7. Many vital organ anomalies

g. Tobacco

1. Prematurity
2. Low birth weight
3. Increased risk for sudden infant death syndrome
4. Increased risk of bronchitis
5. Pneumonia
6. Developmental delays

3. Nursing Care

1. Assess/monitor IV site frequently.
2. Check for medication incompatibilities.
3. Reduce external stimuli.
4. Swaddle the newborn to reduce self-stimulation and protect the skin from abrasions.
5. Administer frequent, small feeding of high-calorie formula-may need gavage feedings.
6. Elevate the infant's head during and followings feedings and burp the infant to reduce vomiting and aspiration.
7. Trying various nipples to compensate for a poor suck reflex.
8. Have suction available to reduce the risk for aspiration.
9. For newborns who are addicted to cocaine, avoid eye contact and use vertical rocking and a pacifier.
10. Prevent Infection.
11. Initiate a consult with child protective services.
12. Consult lactation services to evaluate if breastfeeding is contraindicated or desired.

III. Conclusion

In conclusion, as substance abuse rates continue to rise, neonatal abstinence syndrome will become an increasingly significant healthcare dilemma. Suffering from symptoms such as hypersensitivity to stimuli, tremors, respiratory distress, impaired growth and development, many vital organ anomalies, and more, neonates within this population need intensive nursing care (Sommer et al., 2013). Additionally, more research is needed to determine the long-term effects this condition will have on the neonatal population.

IV. References

Centers for Disease Control and Prevention. (2017, August 01). Morbidity and Mortality Weekly Report (MMWR). Retrieved from <https://www.cdc.gov/mmwr/volumes/66/wr/mm6609a2.htm>

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First Primary Presenting Author

Primary Presenting Author

Natalie Harper, SN
Indianapolis University-Purdue University Columbus
Indiana University School of Nursing
Principal Investigator
Columbus IN
USA

Professional Experience: Natalie Harper is a graduate nursing student within the Honors Program at Indiana University-Purdue University Columbus (IUPUC) School of Nursing. She has continually maintained placement on the Dean's List while also participating in the Health Care Leadership Club on campus and spending countless hours volunteering in the community. She recently hosted a community wide event regarding narcotic administration and use and also presented research at the Sigma Theta Tau International Nursing Conference last fall. This year, Natalie was awarded the Rising Stars of Research Award through IUPUC. Natalie has also worked as a Student Nurse at her local hospital while attending classes full time.

Author Summary: Natalie Harper is a graduate nursing student within the Honors Program at Indiana University-Purdue University Columbus (IUPUC). In her desire to help infants withdrawing from drugs and alcohol, Natalie designed a research study targeting the current drug epidemic in Indiana, as well as effective ways to assist dependent women. Natalie was recently awarded the Rising Stars of Research Award through IUPUC. One of Natalie's goals is to see a reduction in NAS in Indiana.

Second Secondary Presenting Author

Corresponding Secondary Presenting Author

Emily Duke, SN
Indianapolis University-Purdue University Columbus
Assistant Investigator
Edinburgh IN
USA

Professional Experience: Emily Duke is from Columbus, Indiana and is a graduate nursing student at Indiana University-Purdue University Columbus (IUPUC). She has appeared on the Dean's List several semesters, as well as obtained a 3.43 GPA. Emily has played an active role at her college, including operating as the Vice President of the Health Care Leadership Club on campus, where she participated in volunteer activities in the community, as well as guiding club members to become leaders in the future. Emily accepted a position in the Patient Care Internship Program at Riley Hospital where she looks forward to expanding her knowledge and skills in becoming a well-rounded nurse. Emily's long-term goal is to become a pediatric nurse practitioner. She is also very interested in the Neonatal Intensive Care Unit, as well as pediatrics in general. She looks forward to making a difference in the lives of others.

Author Summary: Emily Duke is a graduate nursing student at Indiana University-Purdue University Columbus (IUPUC). Emily accepted a position in the Patient Care Internship Program at Riley Hospital. Emily's long-term goal is to become a pediatric nurse practitioner. She is also very interested in the Neonatal Intensive Care Unit, as well as pediatrics in general. Emily looks forward to making a difference in the lives of others.

