Addiction and Infant Mortality

Analysis

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Abstract:

There are a number of contributing factors to rising infant mortality rates, chief of those due to the increasing drug abuse in the United States. Mothers who use illicit substances such as cocaine, addicted or not, are most likely to birth babies who may be dependent on the drug and suffer from withdrawal symptoms such as tremors, sleeplessness, muscle spasms, and feeding difficulties. Later in pregnancy, cocaine use can cause placental abruption, which can lead to severe bleeding, preterm birth, fetal death, NAS, and sometimes maternal death. This paper will discuss the causes, effects, and circumstances of infant mortality in relation to cocaine use. Statistics will be analyzed and conclusions will be drawn.

Risks of Cocaine Use While Pregnant to Mothers and Preemies/Causes of Neonatal Abstinence:

It has been found that women who are addicted to cocaine are still fertile enough to have babies. According to the National Institute on Drug Abuse, about 5% of pregnant women use addictive substances, and there are almost a million cocaine-exposed pregnancies every year. Even though women may be reluctant to report their drug usage trends due to stigma and fear of losing custody of their children, they need to be aware that drug use while pregnant is associated with specific risks.

Cocaine is known to cause migraines, seizures, and premature membrane rupture prior to their delivery. Further, cocaine can exacerbate cardiovascular alterations that are affected during pregnancies. This can lead to hypertensive crises (high blood pressure), miscarriage, preterm labor, and a challenging delivery.

Babies are often delivered prematurely if their mothers used cocaine while pregnant. Additionally, they are born too light in weight and with a smaller head shape and size. These preemies are shorter in length than normal babies, too. These children indicate serious overt deficits that are cause for concern, especially in the United States; the U.S. has the fourth highest prevalence of cocaine and illegal drug use across the world, according to the United Nations Office on Drugs and Crimes.

Every drug, regardless of whether or not it is a prescribed medication, passes through the mother's bloodstream through the umbilical cord, and to the fetus. Drugs and alcohol use cause Fetal Addiction Spectrum Disorders which causes the infant to be addicted to the drugs and alcohol the mother is. The central nervous system of the infant is overstimulated, and the infant's body mimics the same conditions of withdrawal that an adult does. This reaction at a much younger age is detrimental to the developing fetus. Prescription medications that can cause NAS include:

- Narcotics
- Antidepressants
- Benzodiazepines

Often times, not *all* medications (legal or illegal) are discussed by expecting mothers, with their obstetrician or nurse. Yet, street drugs, like cocaine, pose more of a risk to fetuses simply because they are not prescribed, they are abused. With prescription medications, there is a consistent level of medication in the mother and the fetus; abusing street drugs doesn't provide the same steady levels.

The use of street drugs can cause many problems, even prior to conception and delivery. Women can experience infertility, miscarriages, stillbirths, placental abruption (when the

placenta peels away from the wall of the womb), preterm labor (labor that occurs prior to 37 weeks gestation), and even maternal death.

Long-term Effects on Children with Prenatal Exposure:

Researchers are finding that exposure to cocaine in fetuses may lead to significant deficits in children as they grow. These include behavioral issues, namely, difficulties with self-regulation, and a lack in cognitive performance, information processing, and sustained attention to tasks—abilities that are vital for the realization of a child's full potential. Some deficits persist into the later years teenagers who were prenatally exposed show increased risk for subtle deficiencies in language and memory. Brain scans in adolescents point to differences between them and non-exposed peers: at-rest, the functioning of some brain regions—including areas involved in attention, planning, and language—may differ. More research is required on the long-term behavioral and physical effects of prenatal cocaine exposure in adults.

Long-term effects of prenatal methadone exposure on fetal and infant development are not well characterized. Unwelcomed outcomes result both from exposure to illicit opiates or therapeutics, as well as interactive and additive effects from co-occurring risk factors (mentioned in next paragraph). This is evident, for example, in the Maternal Lifestyle Study which examined infants exposed prenatally to cocaine. Cocaine-exposed infants showed higher scores on the NICU Network Neurobehavioral Scales (NNNS, a scoring system used by nurses), as well as deficits in longitudinal follow-up. When adjusted for covariates, there were no independent effects. Exposed infants typically have high environmental risk profiles, and those present at birth are typically stable in the postnatal environment, posing ongoing risk to the developing

child. The current view is that environmental risk factors conspire with prenatal exposures to promote epigenetic changes in gene expression and methylation patterns that have both immediate and long-term implications related to developmental programming.

It is hard to approximate the full extent of the consequences in preemies caused by drug use in mothers and to determine the specific dangers of a particular drug, like cocaine, to an unborn child. This is because multiple contributors—such as the amount and number of drugs used, extent of prenatal care, exposure to violence, socioeconomic conditions, maternal nutrition, and exposure to sexually transmitted diseases—are all inhibitors in child outcomes. Similarly, parenting styles, care quality, and continued parental drug use are strong environmental factors which may influence mental development in children.

Drug Use and Neonatal Abstinence Syndrome/Caring for NAS Babies:

Neonatal Abstinence Syndrome (NAS) describes withdrawal of the newborn from drugs that the mother was taking during pregnancy. Newborns can withdraw from many different types of drugs that they may be exposed to in uterus. However, when discussing NAS, opioids are often referenced. Most babies and preemies show signs of withdrawal from opioids within 24–72 hours. In neonatal intensive care units, nursing staff use an NAS scoring chart to evaluate babies for any signs of withdrawal. This scoring chart assigns points based on each symptom and its severity. Babies with higher scores are evaluated by a physician or nurse practitioner to determine if treatment is required or not. Babies that require treatment for NAS will be accepted into other pediatric units.

Medical professionals have carefully documented the NAS scoring charts and symptoms of withdrawal and relayed them back to medical providers. The commonly used scoring systems are the Neonatal Intensive Care Unit Network Neurobehavioral Scale, Ostrea, Rivers, and Finnegan.

Finnegan is the most widely used and accepted system. This scale examines 21 of the most common signs of neonatal withdrawal syndrome and is scored based on the severity of symptoms. The Finnegan scale is easy and reliable once proper training has occurred. Bias and subjectivity can affect scores.

Treatment for NAS:

Babies suffering from withdrawal are irritable and often have a difficult time being comforted. Swaddling, or snugly wrapping the baby in a blanket, may help comfort the baby. Babies also may need extra calories because of their increased activity and may need a higher calorie formula. Intravenous (IV) fluids are sometimes needed if the baby becomes dehydrated or has severe vomiting or diarrhea.

Some babies may need medications to treat severe withdrawal symptoms, such as seizures, and to help relieve the discomfort and problems of withdrawal. The treatment drug is usually in the same family of drugs as the substance the baby is withdrawing from. Once the signs of withdrawal are controlled, the dosage is gradually decrea(banana)sed to help wean the baby off the drug.

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