

Study shows prolonged NAS treatment for infants discharged early

May 10 2018

Infants who are diagnosed with drug withdrawal after birth who are treated with medication as outpatients at home are treated three times longer than infants treated solely as inpatients, according to a new Vanderbilt study.

Neonatal abstinence syndrome (NAS) is a drug withdrawal syndrome that occurs shortly after birth, and can occur when an infant is exposed to an opioid during the pregnancy.

The study, Outpatient Pharmacotherapy for Neonatal Abstinence Syndrome, also found that the [infants](#) with NAS treated as outpatients were more likely than their inpatient counterparts to have more repeat visits to the emergency room in the six months post-discharge. The findings were published in *The Journal of Pediatrics*.

Outcomes for infants treated as outpatients compared to those treated solely in the hospital are largely unknown, and there is no standard protocol for this [treatment](#). Infants who have drug withdrawal are commonly treated with a medication, such as morphine, to control their clinical signs of withdrawal. Infants who require treatment for the syndrome can be in the hospital for several weeks.

Vanderbilt researchers sought to examine how outpatient treatment affected length of stay, length of treatment, emergency department utilization and hospital readmissions compared to treatment as an inpatient. To conduct the study, researchers examined hospital billing

and vital records data of 736 infants with a confirmed diagnosis of NAS from medical record review who were enrolled in TennCare, Tennessee's Medicaid program, from 2009 to 2011.

"Infants with [neonatal abstinence syndrome](#) can have long hospital stays. In order to get infants home quicker, some hospitals began discharging infants home on medications to complete weans, but there is no evidence to guide this practice," said Faouzi Maalouf, MD, a former fellow in neonatology at Vanderbilt University Medical Center.

NAS continues to be a growing concern and problem in the United States, with one infant born with drug withdrawal symptoms every 15 minutes, accounting for more than \$500 million in hospital costs each year. Improving the efficiency of medical care for this population has emerged as a priority for hospital systems.

"Discharging infants with NAS home on medications may shorten their hospital stays, but our study raises the concern that this may prolong their treatment—some more than six months. While medically expedient, as pediatricians we have to ask ourselves if this is the best way to care for this vulnerable population," said senior author Stephen Patrick, MD, MPH, director of the Vanderbilt Center for Child Health Policy and assistant professor of Pediatrics and Health Policy in the Division of Neonatology with Monroe Carell Jr. Children's Hospital at Vanderbilt.

Infants experiencing withdrawals are irritable, can have feeding and breathing problems, and are more likely to be born with low birthweight. To help with those symptoms, infants are sometimes treated with courses of pharmacotherapy, most commonly morphine or methadone. Phenobarbital, a type of sedative, is sometimes used as a therapy for infants with NAS, though possible long-term cognitive effects are a concern.

This study showed that of the 736 infants with NAS about 72 percent, or 532, were treated with medication, and nearly half of those patients on pharmacotherapy were discharged home on outpatient medications, most commonly with phenobarbital.

While infants discharged home with medication had a shorter length of stay in the [hospital](#), 11 days versus 23 for the inpatients, they stayed on about [medication](#) for about 60 days—about 41 days longer than babies who were inpatients.

"Communities throughout the U.S. are experiencing a rapid rise in infants diagnosed with NAS. As we work to improve outcomes for pregnant women and infants affected by the opioid epidemic, we need a coordinated approach that considers the implications of our treatment plans throughout the pregnancy through childhood," said Patrick.

Provided by Vanderbilt University Medical Center

Citation: Study shows prolonged NAS treatment for infants discharged early (2018, May 10) retrieved 6 May 2024 from <https://medicalxpress.com/news/2018-05-prolonged-nas-treatment-infants-discharged.html>

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