AAP News™

Study: NAS linked to smaller head circumference at birth

December 10, 2018

Melissa Jenco, News Content Editor

Article type: News

Topics: Fetus/Newborn Infant, Neonatology, Substance Use

Infants with neonatal abstinence syndrome (NAS) often were born with smaller head circumference compared to newborns who were not exposed to opioids, a new study found.

Researchers from the University of Tennessee Medical Center studied 429 infants born between April 1, 2014, and Dec. 31, 2016, who were delivered at 34 weeks' gestation or later and were treated for NAS. About 87% of the mothers were on opioid medication-assisted treatment, which is recommended by the American College of Obstetricians and Gynecologists.

The team matched these infants to infants who had not been exposed to opioids using race, mode of delivery, gestational age and parity. It found the NAS group had a mean head circumference that was 9.5 millimeters less than controls, according to "Neonatal Head Circumference in Newborns with Neonatal Abstinence Syndrome" (Towers CV, et al. *Pediatrics.* Dec. 10, 2018, https://doi.org/10.1542/peds.2018-0541).

About 30% of infants with NAS had a head circumference in the 10th percentile or lower compared to 12% of controls. About 8% were in the third percentile or lower compared to 2% of controls. Reductions in birth weight were smaller than reductions in head size.

When plotting the data to create Gaussian curves, researchers found a shift to the left indicating head circumference may have been affected even for those who fell into the normal range.

They also found that while infants with NAS often were exposed to other substances, only the opioids put them at significant risk of having small heads.

"Because newborn HC (head circumference) is an indirect measure of brain volume, further research is necessary to determine if this finding increases the risk for long-term neurodevelopmental delay," authors wrote.

They also called for more research on the effects of detoxing during pregnancy and outcomes of infants exposed to opioids who do not develop NAS.

Resources

- Related commentary "Fetal Opioid Exposure and Smaller Birth Head Circumference: Cause for Concern?"
- AAP policy "A Public Health Response to Opioid Use in Pregnancy"
- AAP clinical report "Neonatal Drug Withdrawal"
- March of Dimes information on NAS