

Young children exposed to anesthesia multiple times show elevated rates of ADHD

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Mayo Clinic researchers have found that multiple exposures to anesthesia at a young age are associated with higher rates of attention-deficit/hyperactivity disorder (ADHD).

Children exposed to two or more anesthetics before age 3 had more than double the incidence of ADHD than children who had no exposure, says David Warner, M.D., a Mayo Clinic pediatric [anesthesiologist](#) and investigator on the observational study.

The findings are published in the Feb. 2 edition of [Mayo Clinic Proceedings](#).

When basic science studies in the [medical literature](#) began to suggest anesthesia used in surgery causes changes in the brains of young animals, Dr. Warner and a group of researchers at Mayo Clinic took note.

"Those studies piqued our interest," Dr. Warner says. "We were skeptical that the findings in animals would correlate with kids, but it appears that it does."

The study utilized results of an existing epidemiological study that looked at educational records of children born between 1976 and 1982 in Rochester, Minn., and determined those who developed some form of [learning disability](#) or ADHD.

Among 341 cases of ADHD in those younger than 19, researchers traced

medical records in the Rochester Epidemiology Project, a decades-long database of all patient care in Olmsted County, Minn., looking for exposure to anesthesia and surgery before age 3.

Children who had no exposure to anesthesia and surgery had ADHD at a rate of 7.3 percent. The rate after a single exposure to anesthesia and surgery was approximately the same. For children who had two or more exposures to anesthesia and surgery, the rate of ADHD was 17.9 percent, even after researchers adjusted for other factors, including [gestational age](#), sex, birth weight and [comorbid](#) health conditions.

The results of the study, however, do not definitively mean that [anesthesia](#) causes ADHD, Dr. Warner says.

"This is an observational study," he says. "A wide range of other factors might be responsible for the higher frequency of ADHD in children with multiple exposures. The findings certainly do suggest that further investigation into this area is warranted, and investigators at Mayo Clinic and elsewhere are actively pursuing these studies."

Provided by Mayo Clinic

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