

# General anesthesia for hernia surgery in children and risk of later developmental problems

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Children under the age of three who had hernia surgery showed almost twice the risk of behavioral or developmental problems later compared to children who had not undergone the surgery, according to a study by researchers at Columbia University Mailman School of Public Health and the College of Physicians and Surgeons. The study included 383 children who were born into the New York State Medicaid system between 1999 and 2001 who had surgery performed under general anesthesia to repair a groin hernia.

The researchers compared this group of children to 5,050 randomly selected, age-matched children in the Medicaid system, and found that five percent of the children exposed to anesthesia and 1.5 percent of the children in the control group were eventually diagnosed with a developmental or behavioral disorder. After adjusting for age, gender, race and such complicating birth diagnoses as low weight, the association between hernia surgery under general anesthesia and behavioral diagnoses was twice that in children who did not have surgery.

"We suspect that children who had hernia surgery and its associated exposure to general anesthesia during these operations might have played a role in the jump in risk," according to Charles DiMaggio, PhD, assistant professor of clinical Epidemiology at the Mailman School of Public Health, and lead author. "While there is no hard evidence that there is any causal association between anesthesia and developmental

outcomes in children, research in animal models indicates that there may be some association between the types of anesthesia commonly used and neuronal or brain cell-level injury," said Dr. DiMaggio. "The early concern is, could these data be extrapolated to humans?"

According to Dr. DiMaggio, while the current study found an association between anesthesia use and neurodevelopmental problems, these are still preliminary findings, and not a reason to keep children from needed surgery. "This underscores the urgent need for more rigorous clinical research on the long-term effects of surgery and anesthesia in children," says Dr. DiMaggio.

Source: Columbia University

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