

Metabolic patterns of propofol, sevoflurane differ in children

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(HealthDay)—For children undergoing routine anesthesia for medically indicated magnetic resonance imaging (MRI), the metabolic signature varies with use of sevoflurane and propofol, according to a study published in the November issue of *Anesthesiology*.

Zvi Jacob, M.D., from Stony Brook University in New York, and colleagues used proton magnetic resonance spectroscopy to examine the metabolic consequences of [general anesthesia](#) in 59 children undergoing MRI with sevoflurane or propofol. The scans were acquired after about 60 minutes of anesthesia. Upon emergence from anesthesia, the children were evaluated using the pediatric anesthesia emergence delirium scale.

The researchers found that the metabolic signature with sevoflurane anesthesia comprised higher concentrations of lactate and glucose compared with anesthesia using propofol. There was a significant and positive correlation between lactate and glucose with performance on emergence delirium scores, and a negative correlation for total

creatine and the emergence delirium score.

"Our results demonstrating higher glucose and lactate with sevoflurane in the [human brain](#) compared to propofol could reflect greater [neuronal activity](#) with sevoflurane resulting in enhanced glutamate-neurotransmitter cycling, increased glycolysis and lactate shuttling from astrocytes to neurons or mitochondrial dysfunction," the authors write. "Further, the association between emergence delirium and lactate suggests that anesthesia-induced enhanced cortical activity in the unconscious state may interfere with rapid return to 'coherent' brain connectivity patterns required for normal cognition upon emergence of anesthesia."

More information: [Abstract](#)
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