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Letter to the Editor: Is Propofol Good Choice for Procedural Sedation? Evaluation of Propofol in Comparison with Other General Anesthetics for Surgery in Children Younger than 3 Years

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- ▶ See the reply "The Author's Response: Evaluation of Propofol in Comparison with Other General Anesthetics for Surgery in Children Younger than 3 Years: a Systematic Review and Meta-Analysis" in volume 34, number 28, e192.
- ▶ See the article "Evaluation of Propofol in Comparison with Other General Anesthetics for Surgery in Children Younger than 3 Years: a Systematic Review and Meta-Analysis" in volume 34, number 15, e124.

Hong et al.¹ concluded that propofol use for general anesthesia in young children does not cause more complications than other anesthetic agents. Their analysis included 6 randomized clinical trials with 249 children. This article is interesting and informative. I also agree that propofol anesthesia is safe for young children. Nevertheless, I have some questions and comments to authors about propofol sedation. First, how long can propofol be used continuously under general anesthesia to avoid complication of propofol infusion syndrome? Propofol infusion syndrome is a fatal condition, with the symptoms of cardiac failure, hypotension, acute kidney injury, rhabdomyolysis, hyperkalemia, hyperlipidemia, hepatomegaly, elevated liver enzymes, and metabolic acidosis. Further, there are no diagnostic tests. Hemphill et al.² reported that these symptoms presented more frequently in the younger population although short term and low dose use of propofol. Despite its rarity, I am concerned about the use of propofol continuously in children. Second, what is your opinion about propofol sedation induces postoperative vomiting? In the Introduction section, it was mentioned that propofol has the advantage of fewer complications, such as postoperative nausea and vomiting. Do you agree? However, in the Results section, the data showed that 10.7% of the propofol group and 7.1% of the sevoflurane group experienced postoperative nausea and vomiting.¹ According to the data, nausea and vomiting are more frequent in the propofol group although this manuscript concluded that the side effects of propofol were similar to those of sevoflurane. Third, what do you think about using propofol for procedural sedation in children? The author suggested the advantages of rapid induction and early recovery. Propofol is a short-acting agent. It has an early onset of action and a short recovery time.³ I think that short recovery time may be a disadvantage for the procedure. To avoid awakening during the procedure, the clinician would administer additional propofol. Hence, sufficient propofol is needed for a comfortable procedure, which can cause adverse events. I have some experience with conscious sedative endoscopy in children. I have used

the sedative agents midazolam, ketamine, propofol, pethidine, and combinations among them. Recently, 5–18 years old children underwent esophagogastroduodenoscopy under sedation using midazolam in combination with propofol. I previously used midazolam in combination with ketamine. The effects of ketamine are also rapid and short. I will present some disadvantages of propofol sedation compared to ketamine sedation. Generally, the recommended propofol dose for the procedure is 1–2 mg/kg in children (from 3 months to 3 years, 2 mg/kg; over 3 years, 1 mg/kg). The repeat dose is half the initial dose.⁴ According to my data, although 0.1 mg/kg (maximum 4 mg) of midazolam was administered, the children experienced pain at the site of propofol injection. Moreover, most of them without an additional dose of propofol showed irritability during endoscopy. Although additional propofol was injected, the endoscopy was not comfortable, compared to ketamine sedation. Khalila et al.⁵ suggested that younger children need a higher dose (2–6 mg/kg) for satisfactory sedation. However, high-dose propofol can cause respiratory depression and hypotension during the procedural sedation. Propofol has a narrow therapeutic window. It means that we cannot expect the dose for proper sedation. Thus, propofol has no choice but of an additional dose. Otherwise, clinicians cannot achieve satisfactory sedation. I experienced that even the child with successful sedation at a dose of 70 mg failed after a few days at a dose of 80 mg. Unfortunately, I could not determine the recommended dose of propofol for a comfortable and safe procedure although propofol is a good choice as one of the anesthetic drugs.

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