

digm of uncomplicated perianal abscess in infants. Until such data are available, our results support the medical management of otherwise healthy infants with uncomplicated perianal abscess.

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## Effectiveness and Safety of Propofol in Newborn Infants

To the Editor.—

We welcome the recent contribution by Ghanta et al,<sup>1</sup> which showed the efficacy of propofol as an induction agent to facilitate neonatal endotracheal intubation. Their article provided convincing evidence that in neonates, as in adults and children, propofol without muscle relaxants provides optimal conditions for endotracheal intubation. Hence, skilled or less experienced physicians may be encouraged to sedate infants before semiurgent endotracheal intubation, a procedure that is still underused in most NICUs. Nevertheless, we would like to raise a note of caution regarding the use of propofol as a single agent before intubation in newborn infants. Because propofol is a hypnotic agent with no analgesic effect, propofol should be given with adjunctive analgesics for painful procedures. When given as a bolus in hypnotic doses, propofol commonly causes profound apnea. Although short-lasting (30–90 seconds), this effect may facilitate intubation but also delay adequate ventilation and oxygenation if intubation is unsuccessful, especially for infants with difficult airways. Propofol administration is frequently associated with cardiovascular changes, mainly hypotension. Hypotension can be particularly detrimental in newborn infants with pulmonary hypertension, because it favors right-to-left shunting and, thus, hypoxemia.<sup>2</sup>

With these concepts in mind, we conducted a pilot study on 21 consecutive term or near-term neonates with severe respiratory distress who were temporarily intubated to receive surfactant. We aimed to assess the effectiveness and safety of a combination of fentanyl and propofol to facilitate intubation. We used in sequence fentanyl (1.5  $\mu$ g/kg intravenously over 1 minute) and propofol (2 mg/kg intravenously diluted 1:1 over 20 seconds, 2 minutes after fentanyl). A repeated dose of propofol was given if more than 1 attempted intubation was required. The quality of

intubation conditions was graded by the attending physician with the Helbo-Hansen scoring system,<sup>3</sup> which uses scores of 1 (easy) to 4 (difficult) on each of the following variables: ease of laryngoscopy, position of vocal cords, coughing on laryngoscopy or intubation, jaw relaxation, and limb movement. Intubation was considered easy if each variable score was  $\leq 2$ . Successful intubation was attained at first attempt in 86% of the infants, and intubation was considered easy in all of them. Pulmonary artery pressure was higher than normal in 77% of the 18 infants who were screened before intubation. In the 3 infants who required a second attempt of intubation and in 4 of the remaining 18 patients, a brisk oxygen desaturation (not less than 60%) developed and, despite adequate chest excursion, responded slowly to bag-and-mask ventilation. In most infants, these desaturation events were associated with a transient decrease in systemic blood pressure that was treated with a bolus of 10 mL/kg crystalloid. None of the infants in the series experienced tachycardia or increased blood pressure, possibly because of adequate pain control.

We believe that our experience provides a timely complement to the data from Ghanta et al on the use of propofol for neonatal endotracheal intubation and suggests that propofol and fentanyl combined may be safe and appropriate for facilitating semiurgent or elective neonatal intubation.

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## REFERENCES

1. Ghanta S, Abdel-Latif ME, Lui K, Ravindranathan H, Awad J, Oei J. Propofol compared with the morphine, atropine, and suxamethonium regimen as induction agents for neonatal endotracheal intubation: a randomized, controlled trial. *Pediatrics*. 2007;119(6). Available at: [www.pediatrics.org/cgi/content/full/119/6/e1248](http://www.pediatrics.org/cgi/content/full/119/6/e1248)
2. Williams GD, Jones TK, Hanson KA, Morray JP. The hemodynamic effects of propofol in children with congenital heart disease. *Anesth Analg*. 1999;89(6):1411–1416
3. Helbo-Hansen S, Ravlo O, Trap-Andersen S. The influence of alfentanil on the intubating conditions after priming with vecuronium. *Acta Anaesthesiol Scand*. 1988;32(1):41–44

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In Reply.—

We are extremely grateful for the comments by Papoff et al concerning our report<sup>1</sup> on the propofol regimen, compared with the morphine, atropine, and suxamethonium regimens, as induction for neonatal endotracheal intubation. We are equally interested in the findings of their pilot trial, which are encouraging.

Propofol, a general anesthetic agent, serves as a deep sedative and is amnestic at optimal dose. At hypnotic doses, propofol causes slowing of brain activity shown with electroencephalography.<sup>2</sup> We indeed had consid-