Margarete L. Silva
Mestre, Universidade Estadual Paulista (UNESP), Botucatu, SP, Brasil. Auxiliar de ensino, Disciplina de Pediatria, Faculdade de Medicina do ABC, Santo André, SP, Brasil.

Márcia C. Mallozi
Universidade Federal de São Paulo – Escola Paulista de Medicina (UNIFESP-EPM), São Paulo, SP, Brasil. Auxiliar de ensino, Disciplina de Pediatria, Faculdade de Medicina do ABC, Santo André, SP, Brasil.

Giesela F. Ferrari
Doutora. Professora assistente, Disciplina de Pneumologia Pediátrica, Departamento de Pediatria, Faculdade de Medicina de Botucatu, UNESP, Botucatu, SP, Brasil.

Gamma-hydroxybutyrate for sedation in children

Dear Editor,

We read with interest the article by Mencia et al. on analgesia and sedation in children.[1] In addition to the plethora of drugs discussed by the authors, we would like to add our experience on the use of gamma-hydroxybutyrate (GHB) for sedation in children.[2] GHB was first introduced into clinical anesthesia in 1960. Although it reliably induces sedation without significantly depressing respiratory or cardiocirculatory parameters, it has been unpopular because of its prolonged duration of action. Recent clinical studies suggest a revaluation of its use in critical care medicine and general anesthesia.[3] Clinical trials with GHB-induced sedation in children have shown good results, but so far only limited data are available.[2,4]

In our prospective randomized trial, we showed that GHB induces deep sedation (Ramsay score 5) in children undergoing MRI studies. GHB was associated with vomiting despite the prior administration of an antiemetic. This may in part be attributable to the fact that GHB sedation was used in pediatric cancer patients, making them more prone to this side effect because of concurrent chemo- and radiotherapy. Although none of our GHB-sedated patients aspirated during the study, the physician should be aware of this possibility. Moreover, none of our patients required administration of physostigmine, a short-acting anticholinesterase agent, to treat prolonged sedation.

We conclude that GHB sedation is a reasonable alternative for children undergoing noninvasive diagnostic procedures. Pediatricians that are not familiar with potent short-acting sedative drugs (propofol, remifentanyl, etc.) may consider it for deep sedation in pediatric patients.

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S. Meyer
The Centre for Newborn Care, Medical School, The Canberra Hospital, Australian National University, Canberra, Australia.

S. Gottschling
Department of Pediatrics and Neonatology, University Hospital of the Saarland, Saarbrücken, Germany.

L. Gortner
Department of Pediatrics and Neonatology, University Hospital of the Saarland, Saarbrücken, Germany.

Authors' reply

We read with interest the comments made by Dr. S. Meyer et al.[1] about the use of gamma-hydroxybutyrate (GHB) for sedation in children. We have not had any experience with this sedative drug in children. In the medical literature, there are few references other than these authors to the use of GHB in children. The use of GHB is not included in sedation guidelines for children.[2] It has been unpopular because it induces deep sedation, has prolonged duration of action and is associated with vomiting.

Pediatric sedation practice involves a large number of pediatric subspecialists using a variety of sedation strategies and tools. Most employed drugs are still propofol, midazolam and ketamine, although there are new strategies coming up.[3] The effectiveness and safety of this practice needs careful scrutiny. Recent studies concerning depth of sedation have suggested reconsidering systems that employ moderate sedation for painful procedures in children.

Dexmedetomidine sedation delivered by pediatricians is rapidly increasing and has provided adequate sedation in most children. Dexmedetomidine could be an alternative reliable sedative drug in selected patients because it causes fewer cardiorespiratory effects.[4] Similarly, nitrous oxide for pediatric sedation, while promising, will require careful study

as its use increases. Fauroux et al.[5] demonstrated the improved efficacy of sedation, pain control, and safety of premixed 50% nitrous oxide and oxygen for fiberoptic bronchoscopy in children.

Finally, discharge criteria for children who have been sedated should advance along with the drugs and techniques used for sedation during a procedure. The application of specific criteria in this area is a significant improvement over subjective measures that have been used in the past.

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Santiago Mencía
Jesús López-Herce
Sección de Cuidados Intensivos Pediátricos, Hospital General Universitario Gregorio Marañón de Madrid, Madrid, España.

Arginine-vasopressin in severe forms of septic shock

Dear Editor,

We read with interest the article by Irazuzta et al. on the pharmacological support of infants and children in septic shock.[1] Apart from conventional inotropes, the authors suggest the use of vasopressin in severe forms of septic shock.[1] We agree with the authors that arginine-vasopressin and its long-acting analogue, terlipressin, are potent vasopressors that may be useful rescue agents in the treatment of catecholamine-resistant septic shock.[2] However, there is still no clear concept when to start arginine-vasopressin and terlipressin therapy in catecholamine-resistant shock. Recently, a large clinical study in adults with septic shock demonstrated the beneficial effects of initiating arginine-vasopressin therapy before norepinephrine requirements exceed 0.6 µg /kg/minute.[3] This is in accordance with our own limited experience in preterm neonates.[4] In a small series of extremely low birth weight infants, the surviving infants received norepinephrine and epinephrine in a dosage < 0.6 µg/kg/minute prior to arginine-vasopressin medication.[4] Moreover, there is still no clear concept about the precise (starting) dose of arginine-vasopressin/terlipressin therapy in the pediatric population. Due to the lack of reference values in children, the doses are often extrapolated from adult patient reports.[2] In order to shed more light on these important issues, there is a need for large prospective studies in children on the use of arginine-vasopressin and terlipressin in severe forms of septic shock in children.

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S. Meyer
The Centre for Newborn Care, Medical School, The Canberra Hospital, Australian National University, Canberra, Australia.

G. Shamdeen
Department of Neuropediatrics, University Hospital of the Saarland, Saarbrücken, Germany.

S. Gottschling
Department of Pediatrics and Neonatology, University Hospital of the Saarland, Saarbrücken, Germany.

L. Gortner
Department of Pediatrics and Neonatology, University Hospital of the Saarland, Saarbrücken, Germany.

Authors' reply

We agree with the final comments that large protective studies in children are lacking on the use of arginine-vasopressin and terlipressin in septic shock. However, there is a significant amount of pediatric experience utilizing vasopressin as a rescue treatment in septic shock with low sys-