Correspondence

Ketamine for Delivery

To the Editor:—As practicing obstetric anesthesiologists, we would like to take exception to Dr. Gallon’s statement that “ketamine is less than an ideal anesthetic for delivery of a full-term pregnancy.” He bases his objections to the drug on his findings of ketamine-induced increases in uterine tone of second-trimester uteri, as well as on reports of depressed Apgar scores following the use of ketamine in anesthetic doses during delivery.

Extrapolation of data on uterine tone from the second-trimester to the parturient is probably invalid, and further extrapolation to the suitability of ketamine as an anesthetic agent for delivery unjustified. There is a significant difference between second-trimester and term uteri in both resting and active pressure, as well as oxytocin response. Resting pressure doubles in the prelabor period. The evolution of active pressure is gradual until the thirty-sixth week of pregnancy, with an increase from less than 5 torr at 14 weeks to an average of 15 torr at 36 weeks. Thereafter, pressure increases rapidly to more than 30 torr at term and 100 torr in labor.

Low-dose ketamine produces excellent analgesia as well as amnesia in the mother without abolishing muscle tone or protective reflexes. Neonatal arterial pressures in the immediate postnatal period have been shown to be less depressed after ketamine than after thiopental induction. Our comparisons of results of Scamlon’s neonatal neuromotor and behavioral tests of normal babies delivered both vaginally (after < .8 mg/kg) and by elective cesarean section (≤ .1 mg/kg) with results following thiopental (≤ .3 mg/kg) gave statistically significantly more high scores after ketamine (Hodgkinson R, unpublished data). The quoted Apgar scores of Chudoff and Stella obtained following 0.15 mg/lb for vaginal delivery, and those reported by Peltz and Sinclair for 1 mg/kg used for cesarean section, appear excellent. However, the minimum information needed to assess the effect on the Apgar score is a comparison of the effects of ketamine at various dosages with an alternative medication (e.g., thiopenital) at the same hospital, using similar patients, by the same observer. Such a study should preferably be randomized and double-blind.

Finally, we feel strongly that theoretical hypotheses based on the effects of drugs on uterine tone should give way to the clinical assessment of the neonate in terms of survival rates, Apgar scores, neuromotor assessments, blood pressure, and other clinical modalities.

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To the Editor:—I thank Drs. Hodgkinson and Marx for their comments, and I am particularly pleased that they support, in their third paragraph, what I regard as the message of my article, i.e., low doses of ketamine may be good for delivery, high doses are certainly not. However, I must disagree with their
second paragraph: there is evidence in the
literature that one can extrapolate oxytocic
effects on the pregnant uterus from the second
trimester to the uterus in labor. In fact, the
full-term uterus is more sensitive to these
effects, and therefore doses of ketamine that
are used to produce anesthesia in other
circumstances may be dangerous to the fetus
if used before delivery. Finally, in answer
to their first sentence, the word "ideal," as
an adjective, is defined as "conforming to an
ultimate form of perfection or excellence" or
again "considered the best of its kind." My
statement only said that "ketamine is less
than an ideal anesthetic"; surely Drs. Hodg-
kinson and Marx are not suggesting that ke-
tamine is the ultimate, perfect anesthetic for
delivery.

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(Accepted for publication June 26, 1976).

Mutagenicity of Fluoxene

To the Editor: — We wish to alert anesthesi-
stists to the finding that fluoxene is mutagenic
in the Ames Salmonella/microsome assay sys-
tem. This test is both sensitive and specific
in the detection of carcinogens as mutagens,
with approximately 90 per cent of carcinogens
tested being mutagenic and almost all muta-
gens tested being carcinogenic.1 Halothane
was not mutagenic in this system.2 We have
also tested enflurane, isoflurane, and methoxy-
flurane, and they are not mutagenic (unpub-
lished data).

Although fluoxene is no longer in produc-
tion, some institutions may have accumulated
stores of this agent, so that it may still be in
clinical use. It is unlikely that fluoxene
will be further tested for carcinogenic poten-
tial. Our findings suggest that fluoxene
poses a possible health hazard both as a mu-
tagen and as a suspect carcinogen. Although
the experimental data have not yet been pub-
lished, we feel that anesthesiists should be
aware of these facts if they are considering
using fluoxene in the clinical setting.

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