Neonatal Distribution of Succinylcholine

To the Editor:—We enjoyed reading the report by Baraka et al. on the response of two newborns to succinylcholine injection in homozygotic atypical mothers, but would like to take exception to the statements regarding placental transfer and neonatal distribution of the drug. Recent experiments in Macaca mulatta monkeys using ^14C-labeled succinylcholine have shown that placental transfer of the drug is more extensive than reported previously. Since the monkey placenta is similar to the human placenta in anatomy and histology as well as function, these results are applicable to man. Following injection of low doses of succinylcholine into the maternal femoral vein, the fetal concentration reached a peak between 5 and 10 minutes, at which time it was approximately 4 per cent of the maximum maternal concentration. However, following injection of the same dose into the maternal abdominal aorta, the peak fetal concentration was approximately three times higher. This finding emphasizes the importance of the concentration gradient. It was concluded that, under normal conditions, a single dose of succinylcholine of 1 mg/kg body weight for obstetric anesthesia will not endanger the fetus. However, residual neuromuscular blockade in the neonate may be expected after repeated high doses or in the presence of atypical pseudocholinesterase.

Furthermore, measurements of pseudocholinesterase activity in fetal blood of man as well as monkeys have revealed the newborn’s speed of hydrolysis to be only half that of adults or children more than a year old. Finally, in a study of whole-body distribution of ^14C-succinylcholine in near-term rhesus monkeys, the liver was found to contain the highest concentration of drug 5 minutes after injection into the umbilical vein. These levels then declined rapidly through redistribution into other fetal organs, most notably the kidneys.

MICZYSŁAW FINSTER, M.D.
College of Physicians and Surgeons,
Columbia University
New York, New York

GEORGE F. MARX, M.D.
Albert Einstein College of Medicine
Yeshiva University
Bronx, New York

REFERENCES

(Accepted for publication August 22, 1973.)

Fluroxene Concentration in the Perfusate

To the Editor:—In their recent article, “Fluroxene and Isolated Heart Muscle” (Anesthesiology 42:590–597, 1975), Goldberg et al. concluded that fluroxene did not depress V_max at MAC and that this finding was in contrast to the data of Kemmotsu et al. While 1 MAC halothane in their study reduced V_max 48 per cent, which corresponds closely to our results (42 per cent), they found that fluroxene did not depress V_max although we previously reported that 1 MAC fluroxene reduced V_max 32 per cent. Gold-