by necrotizing liver changes in the groups of rats subjected to fasting or low oxygen concentrations. Halothane appeared from the histologic sections to be relatively innocuous in the rat, and showed only transient effects in the dogs as measured by a battery of liver function tests. Some of the dogs subjected to chloroform exhibited reduction in hepatic function. In clinical usage, however, significant alteration in hepatic function was *not* produced in the patients studied subsequent to chloroform (*Poble, F. J.: Wisconsin Med. J. 47: 476, 1948*) or trifluoroethylvinyl ether (*Stavney, L. S., and Morris, L. E., unpublished data*) or halothane (*Morris, L. E., and Feldman, S. A., unpublished data*) if careful attention was paid to avoidance of hypoventilation and hypotension. Definite interference with hepatic function was shown after administration of chloroform in which high levels of carbon dioxide were allowed to occur during the period of anesthesia (*Sims, L., Morris, L. E., Orth, O. S., and Waters, R. M., J. Lab. & Clin. Med. 38: 388, 1951*). Similar investigations in which patients were exposed to halothane and carbon dioxide demonstrated closely comparable hepatic damage as measured by liver function studies. On the other hand, patients subjected in a similar way to trifluoroethylvinyl ether and carbon dioxide showed no apparent change in liver function. This indicates a marked species variation in the response to various halogenated anesthetics, the need for further study in humans, and the need for selecting laboratory animals which behave similarly to humans in the particular functions under study.

The Effects of Depressant Drugs on Respiratory CO_2 During the Anesthetic Period. D. W. Morrow, M.D., J. R. Miller, M.D., R. W. Gardier, Ph.D., and V. K. Stoelting, M.D. *Department of Anesthesiology, Indiana University School of Medicine, Indianapolis, Indiana.* This study was undertaken to establish the factor(s) responsible for carbon dioxide accumulation in the immediate postoperative period (*Hamilton, W. K., and Devine, J. C.: Surg. Gynec. & Obst. 105: 229, 1957*). Patients were selected at random without regard to surgery, anesthetic or anesthesiologist. End-expiratory carbon dioxide was monitored before and after premedication when given, during surgery and for 30 minutes postanesthesia using a to-and-fro sampling method (*Collier, C. R., Affeldt, J. A., and Farr, A. F.: J. Lab. & Clin. Med. 45: 526, 1955*). Except during operation, spirometric tidal and minute volumes were measured concomitantly. Continuous blood pressure, electrocardiographic and electroencephalographic recordings during anesthesia were made on a 4-channel Grass polygraph. Nitrous oxide, ether, halothane and cyclopropane were the anesthetic agents used. Nitrous oxide was supplemented with a barbiturate (methohexital, thiamyal or thiopental) and meperidine or a barbiturate alone, with or without premedication. Anesthesia was induced with an ultrashort acting barbiturate in patients given halothane. Either dimethyl tubocurarine iodide or succinylcholine chloride was used for relaxation if necessary. Premedication with morphine sulfate (9 ± 0.3 mg.) and scopolamine (0.4 mg.) intravenously caused an average 20 per cent decrease in both tidal and minute volume within 15 minutes after administration without changing the mean recorded end-expiratory carbon dioxide. During operation, carbon dioxide accumulation occurred in only 2 of the 6 anesthetic series. These were (1) during the induction period in the series with nitrous oxide and barbiturate without premedication and (2) during the midsurgical period with halothane. Also, only in these groups was there carbon dioxide accumulation in the immediate postoperative period. Carbon dioxide levels returned to normal within 20 minutes. The recorded increases in mean tidal volume were apparently responsible for reducing the postoperative elevated end-expired carbon dioxide. The carbon dioxide retentions were in the range of those mentioned by Hamilton and Devine (45–61 mm. Hg). In this series, premedication did not appear related to the observed expiratory carbon dioxide elevations. Overly zealous administration of barbiturates might be a factor responsible for the postoperative respiratory depression.

Succinylcholine in Obstetrics: Investigation of Its Transmission Across the Placenta. F. Moya, M.D., N. Kvisselgaard, M.D., and L. S. James, M.D. *Department of Anesthesiology, Columbia University College of Physicians*