this procedure. The anesthesia was similar to that observed in animals. The subject was lightly anesthetized for a period of about 10 minutes. Forty-two ml. of the emulsion were given, recovery was uneventful except for a slight urticaria. There was no glottis edema. With 10 mg. of Chlor-trimeton intramuscularly, the urticaria cleared in less than one hour. The reaction was presumably due to the lecithin. The subject showed a positive skin test to purified soy bean lecithin. Ten other persons so tested showed no sensitivity reaction. A second individual was anesthetized to a light plane of surgical anesthesia by the same procedure for a period of 15 minutes. Sixty-two ml. of emulsion were administered. Recovery was slow but without incident. A third subject was anesthetized to a moderate plane of surgical anesthesia in a similar manner for a period of 25 minutes. Eighty ml. of the emulsion were used. There was evidence of some thrombotic reaction in the ante-cubital vein. Relaxation was good and recovery followed the foregoing pattern. A fourth person was a patient undergoing surgery (dilatation and curettage). The anesthesia followed the foregoing pattern. Pain reflexes were abolished and recovery was uneventful.

Summary. It has been demonstrated that a volatile anesthetic agent, in an emulsion of the oil-in-water type, injected intravenously to animals and man evokes satisfactory anesthesia. Our search of the literature reveals that this is the first time this anesthetic procedure has been used in man. If further clinical experience, which is under way, confirms these observations, many relatively high boiling point anesthetic agents may be made available to the armamentarium of the anesthesiologist.

REFERENCES

1. Burkhardt, L.: Uber Intravenose Chloroformnarkose, Muenchen. Med. Wschr. **2**: 1678, 1909.
2. Krantz, J. C., Jr., Truitt, E. B., Jr., Speers, L., and Ling, A. S. C.: New pharmaco-convulsive agent, Science **126**: 353, 1957.
3. Artusio, T. F., Jr., Van Ponak, A., Hunt, R., Tiers, F., and Alexander, M.: Clinical evaluation of methoxyflurane in man (abstract), Fed. Proc. **19**: 273, 1960.
4. Geyer, R. P., Watkins, D. M., Matthews, L. W., and Stare, F. J.: Vasodepressor activity of soybean phosphatide preparations, J. Lab. Clin. Med. **34**: 688, 1949.
5. Chenoweth, M. B., Robertson, D. N. and Erley, D. J.: Blood and urine distribution of methoxyflurane, ether, chloroform in dog, The Pharmacologist **2**: No. 2, 1960.
6. Wadell, W. R., Geyer, R. P., Olsen, F. R., and Stare, F. J.: Clinical observations on use of norphosphatide (Pluronic) fat emulsions, Metabolism **6**: No. 6, 1957.

Control of Postanesthetic Emesis with Trimethobenzamide

Dr. Arnold M. Sobel, Pascack Valley Hospital, Westwood, New Jersey, evaluated trimethobenzamide (Tigan), a new antiemetic with virtually no side reactions, for its effect on postanesthetic emesis.

Patients in whom ether was the primary anesthetic agent (premedication was with pentobarbital and/or meperidine and a belladonna derivative) were selected at random. Some were given no antiemetic medication (controls) and others were given trimethobenzamide intramuscularly during the period of anesthesia, at least thirty minutes and no longer than sixty minutes before discontinuing the anesthetic. The dosage scale recommended by the manufacturer was used: under 30 pounds—50 mg., 30 to 60 pounds—100 mg., 60 to 90 pounds—150 mg., and over 90 pounds —200 mg. Patients who had not fully reacted within one-half hour after discontinuing the anesthetic were not included in this study. Only one dose was given. The patients were evaluated for a period of four hours postanesthesia. The duration of action of the drug is reputed to be approximately four hours.

It was not considered necessary to use placebos, since the patients were not aware of the administration of any antiemetic drug. Evaluation of the postanesthetic results were noted by three trained recovery room nurses who had no way of differentiating control from treated cases. No tabulation of results was done until the study was terminated. It is believed that this provided an adequate

control group and served for the purpose of a double-blind study. The test situation, ether anesthesia, was chosen because of the reported frequency of nausea and vomiting during recovery, and it was believed that this would be an effective clinical test of the drug's antiemetic potency.

One hundred and ten patients, 57 controls and 53 treated patients, were included in this preliminary study. Their age ranged from two months to 57 years. Only definite symptoms were objectively evaluated and an attempt was made to distinguish different types of surgery.

In the control group, the incidence of vomiting after endotracheal anesthesia for tonsillectomies is not much different from that after anesthesia for tonsillectomies by insufflation through the Davis-Crowe mouth gag. A similar comparison in the treated patients reveals only a suggestive beneficial result with trimethobenzamide and no difference between insufflated and intubated patients. There was also no apparent difference in the incidence of vomiting between tonsillectomies done with endotracheal anesthesia and eye surgery done with endotracheal anesthesia. The over-all incidence of nausea and vomiting in the controls was 22/57 (about 38 per cent); in the treated group it was 20/53 (also approximately 38 per cent). There was no obvious difference in any of the subgroups (*i.e.*, abdominal, ocular, tonsillectomy, miscellaneous excluding neurosurgery and chest surgery) to indicate effectiveness of trimethobenzamide in the prophylaxis of post-ether anesthesia emesis.

The incidence of emesis in the group of abdominal and other surgery is about 22 per cent (7/31) in the control group and 26 per cent (9/34) in the treated group. The incidence of this complication was apparently higher in both groups in those patients undergoing tonsillectomy or ocular surgery. This may be related to the age group or the area of surgery. Thiopental induction made no significant difference.

Forty-three per cent (10/23) of females in the control group exhibited emesis; this figure for males was 39 per cent (13/33). The figures for the treated group are males 43 per cent (14/32) and females 36 per cent (8/22). Untreated female adults vomited no more frequently than premenstrual females. The male group also showed no incidence related to age.

The results show a minimum of 25 per cent and an over-all average of 44 per cent emesis after ether in the control group. No apparent difference was observed in the group treated with trimethobenzamide.

No side effects of the drug were observed. There was no tissue reaction to injection and no effects on the respiratory, cardiovascular, or central nervous systems. Definite therapeutic effects were not evident in this series. This may be attributed to either (1) the low potency of the drug, in spite of its ideal site of action (on the vomiting center itself), (2) the very high potency of the emetic stimulus, or (3) a combination of the two. Ether most likely produces nausea and emesis by some direct effect on the vomiting center as well as indirectly by increasing nasopharyngeal secretions and as an irritant to the gastric mucosa. It is possible that trimethobezamide in much higher doses than used in this study may be somewhat more effective.

Deterioration of Spinal Needles

Drs. William Hamelberg and Jerome Gauthier, of the Ohio State University Hospital in Columbus, Ohio, noted that in an effort to circumvent any error in the sterilizing procedures, various chemical methods have been introduced to indicate the equipment has been autoclaved. Ideally, these indicators should not harm the equipment; however, this report demonstrates that some indicators do.

To avoid contaminating all the spinal needles placed on the tray, thereby reducing the number of needles requiring processing, they began sterilizing each needle in a small test tube (16 × 150 mm.) containing a sterilization indicator (Steam-Clox, Aseptic Thermo Indicator Company). Shortly after this change we noticed the needles were coated, as well as eroded, by a rust-like