Comparative Respiratory Effects of Commonly Used Hypnotic and Analgesic Drugs in the Young and in the Aged. YOSHIO KUROSU, M.D., AND ARTHUR S. KEATS, M.D. *Division of Anesthesiology, Baylor University College of Medicine and Jefferson Davis Hospital, Houston, Texas.* It is generally assumed that old people are more sensitive than young people to the respiratory effects of hypnotic and analgesic drugs. This study was undertaken to test the validity of this assumption, since little data can be mobilized in its support. The subjects in the aged group were 14 hospitalized patients between the ages of seventy and seventy-nine years who were free from cardiopulmonary disease by both physical and X-ray examinations, and who appeared to be their ages. For comparison, 5 healthy subjects between twenty and thirty years of age were studied. The respiratory response to 3 concentrations of carbon dioxide in oxygen were measured in all subjects before and at one and three hours following drug administration. Minute volume, respiratory rate, and alveolar carbon dioxide tension were recorded (*Keats, A. S., Telford, J., and Kurosu, Y., Anesthesiology, 18: 690, 1957*). The following drugs were studied: morphine 10 mg., meperidine 50 mg., pentobarbital 100 mg., and saline (placebo) 2 cc., all given intramuscularly per 70 kg. of body weight; chloral hydrate 1.0 Gm. and pentobarbital 100 mg. by mouth per subject. All 5 subjects received all 6 drugs. Each subject in the aged group received 2–3 drugs only. For each subject respiratory stimulus (alveolar carbon dioxide tension)-response (alveolar ventilation) curve was plotted. The displacement of this response curve from predrug control at alveolar ventilation of 8.5 l./minute was used as the quantitative index of degree of respiratory depression. The respiratory depression which followed pentobarbital both intramuscularly and by mouth in both groups was not significantly greater than that of the placebo; however, chloral hydrate depressed respiration to a significant degree in both groups. Morphine 10 mg. and meperidine 50 mg. were potent respiratory depressants in both groups, with morphine producing the greater depression. With all drugs studied, respiratory depression in the old people was greater than in the young and drug effects persisted longer. However, the difference between the two groups was small and not statistically significant for any drug. Pentobarbital by both intramuscular and oral administration in the elderly patients produced the least respiratory depression among the drugs studied. No marked differences were noted between the young and old in the degree of sedation produced by these drugs in these doses.

Cardio-circulatory Effects of Muscle Relaxants During Cyclopropane Anesthesia in Man. T. H. LI, M.D., AND BENJAMIN ETSTEN, M.D. *Department of Anesthesiology, New England Center Hospital and Department of Surgery (Anesthesiology), Tufts University School of Medicine, Boston, Mass.* The purpose of this study was to compare the cardiohemodynamic effects of *d*-tubocurarine and succinylcholine during cyclopropane anesthesia in man. Twelve patients without discernible cardio-pulmonary disease were divided into two equal groups and studied for the effects of: (A) *d*-tubocurarine and (B) succinylcholine. The patients were given premedication consisting of pentobarbital (1 mg./kg.) and scopolamine (0.006 mg./kg.)and anesthesia was induced with cyclopropane followed by tracheal intubation. Anesthesia was maintained at EEG level 3 with blood cyclopropane of 10–15 mg. per cent. Ventilation was automatically controlled by means of a displacement piston incorporated with the Etsten Ventilator to maintain the arterial *p*H, pCO_2 and O_2 saturation within normal levels. In each experiment airway pressure, arterial blood pressure, EEG and ECG were simultaneously and continuously recorded on a Sanborn multichannel model-150 oscillograph. Cardiac output was determined by the dye dilution method and stroke volume, mean circulation time and total peripheral resistance were calculated according to conventional formulas. Arterial *p*H (Cambridge Electron Ray *p*H meter–research model). CO_2, O_2 capacity and O_2 content (Van Slyke manometric apparatus) were determined. Control observations were made after a steady state (*p*H 7.40 and arterial pCO_2 from 36 to 44 mm. of mercury) was obtained during cyclopropane anesthesia. In group A observations were obtained at 15