closes his article with "the ketamine-induced EEG seizure does not lead to generalized convulsions. . . ." Both articles, however, give evidence for and suggest the possibility of generalized convulsions during ketamine anesthesia.

During a study of anesthesia for outpatient surgery, we observed a generalized grand mal seizure in a 26-year-old woman two minutes after an intravenous induction dose of 130 mg ketamine given for elective abortion. Treatment with oxygen by mask and diazepam, 10 mg, intravenously, was given immediately. This patient had no history of serious disease or convulsive disorder, and denied taking any drugs. Hypoxia by airway obstruction or hypoventilation could not account for the convulsion. She was alert and talking within 30 minutes and was discharged two hours later. A more complete neurologic evaluation was not carried out.

We have observed sporadic myoclonic jerks of arms or legs in several other patients during ketamine anesthesia. We now believe that generalized convulsions must be considered a potential complication of this drug.

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Postoperative Hypoxemia and Age

To the Editor:—We read with interest the paper by Dr. Kitamura and others (ANESTHESIOLOGY 36:244, 1972) on the contribution of age to postoperative hypoxemia. We would like to report some relevant measurements of our own.

A study of 42 male patients (mean age 45.1 years ±12.3 SD) who underwent vagotomy and pyloroplasty through a right paramedian incision was conducted. Their physical status was ASA grade 1. They were premedicated with morphine, 10 mg, dehydrobenzperidol, 5 mg, and atropine, 0.6 mg. Anesthesia was induced with thiopental and maintained with 70 per cent nitrous oxide in oxygen alone (16 patients), or supplemented by either trichloroethylene (12 patients) or morphine, 10 mg (14 patients). Muscle relaxation was achieved with pancuronium bromide and respiration controlled with a respirator. End-tidal P_{CO_2} was maintained in the range of 35–42 mm Hg. The operations lasted one to two hours. Atropine, 1.2 mg, and neostigmine, 2.5 mg, were administered during skin closure. In most patients, the adequacy of neuromuscular transmission was assessed with a peripheral-nerve stimulator.

The patients breathed room air for the first 30 minutes in the recovery room, after which arterial blood was sampled. Patients then breathed oxygen-enriched air from an Edinburgh mask with a 3 l/min O_2 flow. This provides an inspired oxygen concentration of 35–40 per cent.[1] After 30 minutes on this system, a second arterial sample was taken. Blood gases were measured using Radiometer electrodes. The P_{O_2} electrode was calibrated with nitrogen and room air and, when appropriate, values were corrected for temperature of the patient using the Severinghaus slide rule.[2] No correction was applied for differences in electrode responses to gas and blood.

During measurements, the patients appeared comfortable and could be roused. None developed shivering, cardiac arrhythmias, or hypotension.

Significant correlations between age and arterial P_{O_2} were found during breathing of both air ($r = -0.312$, $P = 0.05$) and oxygen-enriched air ($r = -0.490$, $P < 0.002$). The regression equations were:

$$Pa_{O_{2AIR}} = 81 - (0.285 \times \text{age})$$

$$Pa_{O_{2\,35-40\%O_2}} = 166 - (1.1204 \times \text{age})$$

It is of interest that the slope and intercept of our air regression line are in close agreement with Nunn.[3] Kitamura's line is steeper and has a higher intercept, but is closer to those obtained by Gordh *et al.*[4] and Palmer and Gardiner,[5] who reported measurements made 24 hours after operation. Although we did not measure Pa_{O_2} before operation, our line is virtually parallel to regression lines previously reported for age and Pa_{O_2} in healthy subjects.[6,7] Kitamura found a significant increase in slope after operation. Their measurements were made "usually one to two hours after operation." It may be that the time interval from the end of operation is the important factor. A recent study in this department[8] suggests that an adverse shift in the relationship of small airways' closing point to end-tidal point, probably the result of abdominal muscle spasm,[9] is an important cause of maldistribution 24 and 48 hours after upper abdominal operations. The early recovery period is likely to be one of rapid transition as regards these changes.

Conway and Payne[10] implied that there was little purpose in administering inspired oxygen in excess of 35 per cent after operation, since this concentration would be sufficient to compensate for the V/Q disturbance. Kitamura's measurements during breathing of 100 per cent of O_2 and ours with 35–40 per cent O_2 make the point that older patients not only suffer greater hypoxemia while breathing air, but obtain the least benefit from high inspired oxygen concentrations. The practical lesson is that higher oxygen concentrations may be needed for older patients and that the adequacy of therapy should be measured rather than assumed.

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Precurarization and Dose of Succinylcholine

To the Editor:—Freund and Rubin (Anesthesiology 36:185, 1972) reported that pretreatment with 3 mg *d*-tubocurarine markedly reduced the duration of total twitch depression following 0.7 mg/kg succinylcholine. However, both Miller and Way (Anesthesiology 35:567, 1971) and Cullen (Anesthesiology 35:572, 1972) demonstrated only minimal effects of 3 mg *d*-tubocurarine on the duration of twitch depression with 1.0 mg/kg succinylcholine, even though Cullen found delayed onset of depression and impaired intu-