

for abdominal surgery was used. Curare was used to provide relaxation when the duration of the spinal anesthetic was not sufficient to complete the operation. General anesthesia was induced and maintained in a light plane. Curare was then given five to fifteen minutes before closure of the peritoneum or earlier if the surgeon required further relaxation. Few changes in circulation followed the use of curare in either of the first two groups of patients.

The third group of patients were poor-risks and required abdominal surgery. Light premedication was used, intravenous fluids were started and cyclopropane anesthesia was induced and maintained in the first plane of the surgical stage. Abundant oxygenation was provided. Small doses of curare were used until satisfactory relaxation was produced. Less than 50 mg. and as much as 150 mg. of curare was required. Although some of the patients in this group were moribund before the operation, there was no death during the operation or during the immediate postoperative period.

The fourth group was made up of patients who required endotracheal anesthesia. Cyclopropane or pentothal sodium was induced and curare was simultaneously administered in doses of 20 to 50 mg. Further doses were given every three or four minutes. Within eight to ten minutes the intubation was done with ease. There were some cases in which rhythmic breathing stopped, and there was cessation of breathing, interrupted with occasional jerky inspirations. Resistance to inflation of the lungs during this period indicated the presence of bronchial spasm.

The recovery period for all of the cases of all of the groups was generally brief and uneventful. Two patients showed postoperative respiratory de-

pression, probably due to hypoxia during periods of shallow breathing. In one patient postoperative depression was followed by a fatal outcome. 17 references.

F. A. M.

THOMPSON, S. A., AND ROCKEY, E. E. *The Effect of Mechanical Artificial Respiration upon Maintenance of the Circulation.* Surg., Gynec. & Obst. 84: 1059-1064 (June) 1947.

A method for determining the effect of mechanical artificial respiration upon the circulation when the heart is no longer beating is described. Oxygen (used as a tracer substance) was introduced into the vascular system of animals immediately after death and movement of the tracer observed during inflation and deflation of the lungs.

It was shown that mechanical inflation and deflation of the lungs produces an actual movement of the blood column and that the blood can be circulated over the whole body without benefit of any heart action whatever. The use of heparin prevents clotting and keeps the blood in a fluid state. As a result, blood can be more effectively circulated and this increases possible survival time.

Those mechanical resuscitators employing positive and negative pressure were more efficient in circulating blood than were those employing only positive pressure and release or negative pressure and release.

M. F. P.

GRAY, T. C.: *d-Tubocurarine in Caesarean Section.* Brit. M. J., (April 5) 444-445, 1947.

Fifty caesarean operations were done with anesthesia supplemented with d-tubocurarine. Atropine 1/100 gr. (0.65 mg.) was given one hour before operation. When the surgeon is ready the induction is carried out by an in-

jection of 15 mg. of d-tubocurarine followed by 0.3 g. of "kemithal" in 5 per cent solution. Anesthesia is maintained with cyclopropane. The transient loss of consciousness which results from the induction makes it necessary to start the cyclopropane immediately. Respiration is aided from the beginning to overcome the small amount of depression which may result from the induction dose of d-tubocurarine. Anesthesia is kept as light as possible up to the delivery of the child. After delivery the anesthesia is deepened if required. With the exception of 2 cases the babies have all cried lustily as soon as the head is delivered. They have shown no evidence of curarization.

Uterine contractability was increased and the injection of pituitrin has been discontinued. The patient wakes up as the dressing is being applied. Residual signs of curarization have been evident on occasion but only twice has prostigmin and atropine been necessary. Postoperative vomiting or retching is rare. 3 references.

F. A. M.

SLOCUM, H. C.; HOEFELICH, E. A., AND ALLEN, C. R. *Circulatory and Respiratory Distress from Extreme Positions on the Operating Table*. Surg., Gynec. & Obst. 84: 1051-1058 (June) 1947.

The supine horizontal position is the one best tolerated by the anesthetized patient. Circulatory embarrassment due to the increased effects of gravity upon venous return are directly proportional to the variation from the horizontal plane. Other causes of circulatory embarrassment are:

1. Loss of muscle tone
2. Loss of autonomic tone
3. Abnormal intrathoracic pressure
4. Respiratory depression

5. Abnormal intra-abdominal pressure
6. Systemic disease.

Respiratory embarrassment occurs with depression of nervous control whether central or peripheral and with mechanical interference with respiratory excursion. With extreme positions of Trendelenburg or lithotomy, the increased abdominal pressure upon the diaphragm may markedly inhibit its activity, while lateral or prone positions with improperly placed blocks and pressure interfere with intercostal excursion.

Adequate respiratory exchange should be maintained, thereby avoiding the muscular tension accompanying hypoxia. If the anesthetist produced the degree of relaxation afforded by the anesthetic drugs now available, he will find that the surgeon will operate and not demand extreme variations of position from the horizontal for patients with poor reserve.

M. F. A.

GREEN, D. M., AND METHENY, DAVENPORT. *The Estimation of Acute Blood Loss by the Tilt Test*. Surg., Gynec. & Obst. 84: 1045-1050. (June) 1947.

From observations carried out on various subjects, normal and with pathological conditions, certain tentative guides to therapy seem applicable to the patient who has had a hemorrhage.

An increase in the cardiac rate less than 25 beats per minute on tilting to plus 75 degrees in the absence of a syncopeal reaction, indicates either a negligible or compensated acute blood loss. Transfusion is not required as an emergency therapeutic measure, although the degree of anemia or the possibility of recurrent bleeding may suggest its desirability as a prophylactic measure.

An increase in cardiac rate on tilting of 30 beats or more per minute over