

## Serum:

1. Greater protein content; pools contain 7 grams per cent compared to 5 grams per cent for plasma.
2. Obviates expense and trouble of citrate.
3. Can be filtered; hence, bacterial sterility can be assured.
4. Liquid serum remains clear; plasma (unless recalcified) precipitates out fibrin.
5. Drying is easier without presence of citrate. . . .

"Serum and plasma are equally efficacious and the reactions each causes are rarely severe; the choice between them becomes largely a question of convenience and practicability of preparation and administration.

"Serum is now being prepared at the Presbyterian Hospital Blood Bank to meet the need of supportive therapy in patients with low plasma proteins and low calcium. Massive replacement with serum rather than with citrated plasma theoretically is safer in such states, particularly in infants."

A. W. F.

BARBER, R. F., AND MADDEN, J. L.: *Resuscitation of the Heart*. Am. J. Surg. 64: 151-168 (May) 1944.

"Acute stoppage of the heart is a surgical emergency demanding immediate action if complete recovery is to be obtained. A preconceived plan of therapy avoids delay and confusion.

"The percentage of complete recovery in resuscitation of the heart will vary in direct ratio to the time interval between cardiac stoppage and the production of an adequate circulation by massage.

"The maintenance of a free and adequate artificial respiratory exchange during the course of resuscitation of the heart is essential.

"The cases of cardiac stoppage, capable of complete resuscitation, are

those resulting from asphyxia, reflex vagal inhibition, cardiac trauma, cardiac toxins (drugs, anesthetics), acute cardiac dilatation, hemorrhage and vasomotor paralysis with resulting circulatory insufficiency, and electrocution.

"The indiscriminate use of the intracardiac injection of epinephrine or other sympathomimetic drugs is condemned.

"Sympathomimetic drugs should not be administered during the course of cyclopropane anesthesia.

"Procaine hydrochloride (2 per cent) administered prior to, or simultaneous with, the intracardiac injection of epinephrine lessens the possibility of ventricular fibrillation occurring.

"The topical application of procaine (5 per cent), metycaine (10 per cent), or cocaine (4 per cent) may also be used to the surface of the heart; the injection of the 2 per cent solution into the chambers of the heart and electrical countershock are the most efficient methods in the treatment of ventricular fibrillation.

"The transthoracic approach is the method of choice in the performance of cardiac massage. Exposure of the heart is obtained through a transverse incision in the left third or fourth interspace, the adjacent costal cartilages sectioned, and the corresponding ribs widely retracted.

"Manual massage of the heart is the most effective means of initiating cardiac contractions. If uniform success is to be obtained, massage must be performed within three minutes following cessation of the heart beat."

A. W. F.

POWERS, JOHN H.: *The Abuse of Resuscitation as a Therapeutic Measure in Surgery—Early Postoperative Activity and Rehabilitation*. J. A. M. A. 125: 1079-1083 (Aug. 19) 1944.

Early restoration of the surgical patient to normal life is an essential feature of convalescent supervision. "Prolonged periods of recumbency in bed are anatomically, physiologically and psychologically unsound and unscientific." The series of 100 consecutive patients were allowed to sit in a chair or walk on the first day following major surgery, and an equal number of unselected cases were studied who remained in bed from ten to fifteen days after the same type of surgery or operation.

In this series were major cases such as: "Hernioplasty for inguinal, femoral, umbilical, epigastric, and incisional hernias; appendectomy for acute appendicitis, including cases of perforation with abscess and peritonitis; cholecystectomy with and without exploration and drainage of the common duct, and hysterectomy and other major pelvic operations performed through abdominal incisions." All cases in this series were over the age of 12. The criteria for comparison in this series were temperature and pulse rate, number of days confined to bed, length of time spent in the hospital, and the duration of the convalescent period before returning to work.

Of the hernioplasties, 39 cases were studied who were up and walking on the first day after the operation. The series which permitted early activity averaged nine and one-tenth days in the hospital and required five and six-tenths weeks for convalescence. The controlled series averaged fifteen and two-tenths days in the hospital and required ten weeks for convalescence.

There were 22 cases of appendectomies studied, which included: one case of abscess, and four cases of localized peritonitis. The patients who were permitted out of bed the first postoperative day maintained lower pulse and temperature than the series who remained in bed nine and eight-tenths

days. Convalescent period for the active group was four and eight-tenths weeks, and eight and seven-tenths weeks for those kept in bed postoperatively.

In this series of cholecystectomy and/or choledochostomy 14 patients were studied. They had lower pulse and temperature than the similar series remaining in bed for fifteen and three-tenths days. Two cases kept in bed developed incisional hernia. All of the wounds were drained with the cigarette drain, and the type of incision used was a right rectus or the oblique subcostal incision. The cases of abdominal pelvic surgery were compared. A series of 25 were studied who were up walking the day after surgery and the controlled series remained in bed for an average of thirteen and four-tenths days. The total convalescence for the patient permitted early activity was six and seven-tenths weeks and those of the bed rest series eleven and six-tenths weeks.

In analyzing the total series of cases the author points out that the average period of convalescence after early activity was five and seven-tenths weeks and after traditional postoperative management ten and three-tenths weeks. In the series the pulse and temperature were lower and became normal more rapidly in patients with early activity.

Postoperative complications of the series: There were no cases of wound disruption, and one incisional hernia developed several months after the operation in the series of early activity. In the recumbent series there were two instances of incisional hernia, two of recurrent hernia, one of hematoma and one of silk sinus. There were no cardiac complications. In this series of early activity, which includes 8 patients between the ages of 70 and 82 years, the "Postoperative inhibition of the bladder was rather common in

both groups. It is of significance, however, that in the ambulatory group the difficulty in voiding usually occurred during the night of the day of operation. Only two patients required subsequent catheterization after they were up and about." There were no cases of postoperative distention in the ambulatory cases.

It is interesting to note the choice of sutures used in this series. The author preferred nonabsorbable, interrupted sutures except in the peritoneum; also the use of wire or retention sutures. Most of this series was done with silk technic. "Proper and accurate coaptation of tissues, meticulous hemostasis, assiduous care in the prevention of infection, and gentle manipulation of tissues are undoubtedly of more importance than the nature of the material with which the wound is sutured."

The author discusses the value of early activity, insofar as it increases pulmonary ventilation, and the exercise of walking increases the circulation to the lower extremities, thus improving muscle tone and preventing thrombophlebitis. The psychologic aspect of early activity does a great deal to minimize the dread and fear of operative procedures for the patient. Short convalescence is insured and thus decreases the economic problems of the patient.

Conclusion: "Prompt restoration of surgical patients to normal life is an essential feature of convalescent supervision. Early postoperative activity and walking provide manifest modifications in customary convalescent care by which the process of reconditioning may be largely eliminated and early rehabilitation achieved.

"The indications for such a program are manifold; no contraindications are apparent in this study of 100 consecutive cases."

M. L. B.

KRANTZ, J. C., JR.: *Anesthesia—Man's Redemption from Pain*. Bull. Univ. Maryland School of Med. 29: 79-87 (Oct.) 1944.

"Pain is the arch enemy of mankind. All through the annals of written history man has ransacked this entire earth in order to acquire a substance that would relieve the ceaseless pain. His real struggle began in the year 1776. . . . Prior to the time of Joseph Priestley mankind suffered tremendous pain in surgical operations. . . . Joseph Priestley had no idea that nitrous oxide would be useful in the alleviation of human pain and suffering. In the year 1800, at the turn of the century, Sir Humphry Davy remade Priestley's gas. . . . The scene shifts now across the Atlantic from England into this country. Four decades have passed and the year is 1841. The exact date is December 10th and in Hartford, Connecticut, a ripple of enthusiasm stirs throughout the town. A miracle worker is coming to town. He is Gardner Q. Colton, lecturer on chemical phenomena. He has a new gas and this new gas can make people act beside themselves. It can make a very peaceable man pugnacious. It can throw him into fits of anger. And that afternoon a dentist of Hartford, Connecticut had a flash through his scintillating intellect the idea of the possibility of using this gas in dentistry. . . . Time went on and Wells did not succeed in getting the use of nitrous oxide well established in his native town of Hartford. Owing to ill health he gave up his dental practice. . . . Crawford W. Long, a physician, in 1841 heard of a liquid that was being used to cause people great exhilaration comparable to alcoholic ebriety and the young physician got interested. . . . Through the mind of Crawford W. Long flashed the possibility of using ether as an agent to relieve pain. . . . Out of the South the scene of general anesthesia pushed