

per cent mortality compares favorably with the 54 per cent mortality in their previous series. The authors mention the preoperative use of sulfanilamides in patients receiving pentothal anesthesia and see no clinical contraindication to this combination of drugs. 6 references.

V. A.

CURRENS, J. H.; WHITE, P. D., AND CHURCHILL, E. D.: *Cardiac Arrhythmias following Thoracic Surgery*. New England J. Med. 229: 360-364 (August) 1943.

Twelve cases of cardiac arrhythmia following thoracic operations are described. The cases include 8 of auricular fibrillation and 4 of auricular flutter. They occurred after pneumonectomy, lobectomy or partial esophagectomy and represent a rate of occurrence of nearly 25 per cent after such operations. With one exception the arrhythmias appeared within five days of the intervention; the other, in which auricular fibrillation occurred on the seventeenth postoperative day, responded promptly to an increase in the intrathoracic pressure from negative to positive.

Arrhythmia was transient in every case but one, and in this the auricular flutter persisted until the patient's death six months later. With this exception the disturbances of rhythm never lasted, apparently, for more than three days. It is remarked that in two cases premature auricular beats were noted before or after the tachycardia and that in four of their series there was at least one recurrence of arrhythmia following restoration of normal rhythm. In none of the cases was there any sign of cardiac failure.

*Comment:* In attempting to decide the cause of these arrhythmias the authors admit that it is obscure, but point out that all their patients with

these disturbances had passed the age of 39, and also mention certain associations of these arrhythmias with the onset of other complications such as empyema and atelectasis. One case was found at autopsy to have a pericarditis.

In view of the frequency with which these disturbances arise, the use of quinidine as a prophylactic measure after thoracic operations may well be justified. The occurrence of auricular premature beats may give warning of the imminence of a more serious arrhythmia which quinidine might prevent. Where one of these disturbances has appeared three alternatives are at the disposal of the clinician. Since most of the patients will re-establish normal rhythm in any case no treatment may be necessary. In certain cases normal rhythm may be restored by quinidine. If cardiac failure threatens, and the arrhythmia seems to be a threat to the patient's well-being, it is essential that rapid digitalization be undertaken forthwith.

I. R. G.

ALLEN, F. M.: *Theory and Therapy of Shock: Excessive Fluid Administration*. Am. J. Surg. n.s. 61: 79-92 (July) 1943.

"The irreversibility of very advanced shock is undisputed. Any therapeutic advance requires an attack on this problem of irreversibility. Although Moon furnished the best phrasing of the idea that 'the wheal is shock in miniature,' he did not draw the therapeutic inference which seemed to me logical. Is it rational to try to prevent formation of the wheal? Since shock is by definition a fluid shift, and the injured tissues evidently somehow need fluid to form the 'wheal,' why not help them to form it by supplying a fluid that will pass readily through the capillary walls

. . . Ever since the first introduction of the colloid concept and gum arabic, physicians and experimenters have unanimously concentrated on treating the blood instead of the patient. The real task is to cure shock which cannot be cured by blood or plasma. If this can be accomplished, the correction of any deficiency of the blood in cells or protein is a secondary problem. According to this concept, when a therapist makes the stereotyped complaint, 'I have given large saline infusions and they do not prevent hemoconcentration and only carry protein with them out of the vessels,' the proper answer is, 'Excellent. Now continue to give more saline until the tissue demands are satisfied so that fluid remains in the vessels and hemoconcentration is abolished.' The precise question to be answered experimentally therefore is: Can salt solution establish a lasting equilibrium between the intravascular fluid and the extravascular fluid of the 'wheal,' or will plasma depletion and edema formation continue to an unlimited and fatal degree? . . .

"Dogs in the extreme stages of fatal shock produced by leg ligation were given either continuous physiological saline infusions by cannula or else repeated large injections (with a 50 or 100 cc. Luer syringe and an 18 gauge needle), the latter being usually preferred. . . . In this first type, the total volume of injections was intentionally excessive, to ascertain the disposal of the fluid and its effect. . . . In order to learn what part of the results were due to shock, it was evidently desirable to carry out a similar procedure on normal dogs. . . . In the absence of organic disease, the tolerance limit for physiological saline solution is evidently high. . . . The tolerance for hypertonic salt solution or for glucose solution is lower. Cutter recommended an actual infusion rate of 20 to 40 cc. per minute for patients

in shock. Conservatism in clinical trials is suggested by the fact that human beings are more subject to edema than cats or dogs. . . . The immediate therapeutic effects of large saline infusions in shock are spectacular. Inasmuch as circumstances did not permit of setting up apparatus for the elaborate records which critics might demand, the plan was adopted of letting at least one animal in each class of experiments reach the point of death. Death in shock always occurs by apnea, while the heart beats strongly and then fades out. . . . The evidence of the degree of shock in these experiments is furnished by the corpuscle counts, and by waiting until the breathing has stopped and sometimes until the heart action has almost ceased. . . . This test in any form of true shock (not acute hemorrhage) believed to be not only decisive proof of the final stage but also a more extreme standard than any other investigator has ventured to set up for any form of therapy. The uniform result is that the saline infusion restores life. As long as any effective flicker of heart action remains, the salt solution together with artificial respiration and some massage of the thorax is successful, without a failure or exception.

"As the infusion continues or the large injections are repeated, the shrunken blood vessels become filled or distended to such a point that a nick in an ear vein may start a veritable hemorrhage. The correction of anoxemia can be affirmed positively even without oxygen analyses, because the dark purplish blood not only regains normal color but also goes on to the point at which the venous blood is almost as bright tinted as ordinary arterial blood. Hemoconcentration is replaced by a dilution of the blood, the sense of subnormal corpuscle content and also the reduction of plasma protein. . . . The only conclusion drawn at this stage will be of preliminary

nary but sweeping character, namely, that shock is reversible at all stages. It has been explained that this result does not imply saving of life in all cases, though a later paper will give examples of the reversal with quantities of fluid which are compatible with permanent recovery, in shock produced by the same and various other methods. This partial publication, leaving references and various details to be supplied later, has seemed advisable in the existing war emergency, because the experiments if confirmed may suggest clinical trials in cases of shock which are hopeless under present methods."

J. C. M. C.

NOSWORTHY, MICHAEL: *A Method of Keeping Anaesthetic Records and Assessing Results*. Proc. Roy. Soc. Med. 36: 468-471 (July) 1943.

"The present aim was to combine on the same card the usual anaesthetic chart for collecting and recording all the relevant data as well as a method for assessing results statistically without having to use either a code book or a sorting machine. The anaesthetic record is printed on a card 8 in. by 5 in. in size. . . . Around the four sides of the card holes are punched. What each group of holes and each individual hole represents is shown by headings and subdivisions printed against them on the front of the card. . . . The data collected at operation, like other positive factors noted on visiting the patient during his stay in hospital, are subsequently marked with a circle in their appropriate subdivisions round the sides on the front of the card. When the patient has left hospital the holes opposite the encircled positive factors are converted into slots by cutting out a 'V' from the edge of the card opposite each with a pair of special nippers or scissors. . . . Sorting of a pack of completed records

is accomplished by running a knitting needle through the hole representing the factor under consideration, by spreading the pack over its length in order to prevent any cards from clinging together, and then by raising the needle. . . . By repeating this manoeuvre it is possible to find quickly all statistical data required—e.g., the number of a given type of operation performed under a particular anesthetic technique and the post-operative morbidity and mortality, &c."

J. C. M. C.

H. P. R.: *Caudal Analgesia Publicity*. M. Ann. District of Columbia 12: 271-273 (July) 1943.

"The 'de-Kruftian' style of recent la publicity . . . deserves comment.

"Following the work of Lemmon and Lemmon and Paschal on continuous spinal anesthesia, Hingson and Edwards announced their method of administering continuous caudal analgesia in obstetrics. . . . The pioneer work . . . has been followed by articles by Gready and Hesselstine . . . Block and Rochberg . . . Adams Lundy and Seldon . . . for obstetric analgesia. . . .

"The method involves the use of long, malleable needle . . . for the transmission of a local anesthetic agent to the caudal canal epidurally, the hook-up remaining in place throughout labor. . . . There have resulted a large proportion of cases in which highly satisfactory analgesia was obtained. However, contraindications have been noted: placenta previa, inertia uteri, hysterical or psychotic states, disproportion, difficult rotations and versions, hypersensitivity to local anesthetic agents, infective processes over the sacrum and sacral hiatus, and congenital or traumatic malposition or configurations of the vertebral column, especially of the sacral segment. Complications do not often occur but