favorably with that for operations under general anaesthetics (0.077 per cent). This is particularly noteworthy, since spinal anaesthesia is the method of choice for emergency abdominal surgery.” . . .

B. I. S.


“On the occasion of the Centenary of the introduction of chloroform as an anaesthetic agent, we issued a questionary on the use of chloroform. . . . Two forms of questionary were sent out, one to general practitioners in Scotland and the other to specialist anaesthetists attached to teaching hospitals in Britain, America and several European countries. The numerical response to the questionaries was only fair. Of 1,920 general practitioners, 871 replied and of 366 specialists, 177 completed the form. . . . It must be said, at the outset, that one did not expect great precision in the figures. In many cases, particularly in the replies from the general practitioners, the figures were very approximate. . . .

“Of the 871 practitioners, 6 stated that they never give anaesthetics at all; 865 were in the habit of administering anaesthetics in their own obstetrical work and of those 813 used chloroform; 30 used chloroform in combination with ether or as part of a sequence with nitrous oxide and oxygen; only 5 used ether alone. . . . In the choice of anaesthetic for obstetrics, chloroform, in Scotland at any rate, appears to be overwhelmingly popular. . . . Practitioners were also asked to state their choice of anaesthetic for minor surgery. Of 825 who occasionally gave anaesthetics in this class of work, 198 used chloroform; 154, ethyl chloride; 123, nitrous oxide; and, rather surprisingly, local analgesia was the method of choice given in 186 replies. . . . The number of practitioners giving anaesthetics for major surgery is much smaller than in the other groups. The operations were mostly those of an emergency character. Of 452 general practitioners doing such work, 123 expressed a preference for chloroform while 195 chose ether preceded by various induction agents such as nitrous oxide, ethyl chloride and pentothal. Chloroform and ether, either as a mixture or sequence, was used by 118. In the category of ‘Others’ were included spinal analgesia—9 users, and nitrous oxide and oxygen by 3 optimists. . . . For the most part, the specialists stated specifically that chloroform was never used routinely but merely to meet special circumstances. . . . The problem of fatalities from the use of chloroform was also investigated. All practitioners and specialists were asked to give their figures in respect to this. Of the general practitioners, 752 stated they had had no deaths and 119 had 155 deaths amongst them. This is probably an understatement and it certainly does not include deaths in the immediate postoperative period. In a total of 1,084,870 administrations, the death-rate was 1:7,000 for the chloroform cases in general practice. Of 167 specialists using chloroform, 111 had no deaths and 56 had 100 between them. In a total of 276,000 administrations the ratio works out at 1:2,760. . . .

“One striking feature of the analysis is associated with the question as to whether atropine was used with the chloroform. In 234,900 administrations by general practitioners chloroform was preceded by atropine and in this series there were recorded 24 deaths during the induction period, a ratio of 1:9,788, and 44 during maintenance, a ratio of 1:5,339. The number of administrations without atropine was 578,650 in which there occurred
28 deaths during induction, a ratio of 1:20,666 and 42 during maintenance, a ratio of 1:13,777. A further 271,320 administrations by practitioners who stated that they used atropine occasionally have been excluded. Making all due allowance for the statistical approximation of the figures, it is significant that the death-rate was at least twice as high in the group in which atropine was used as that in which it was omitted. . . . While atropine may protect the patient from excessive vagal stimulation during the administration of chloroform, it may be a detrimental factor insofar as the avoidance of ventricular fibrillation is concerned, and while vagal inhibition itself may not cause death, it may be a stage in the development of ventricular fibrillation. . . . The specialists' questionnaire gives information regarding the teaching of chloroform to students. While 71 teachers of anaesthetics give instruction in chloroform, there are 106 who do not.’’ No references.

J. C. M. C.


The history of curare is reviewed, particularly with reference to British contributions during the past three and a half centuries. The recent developments since 1938 involving Gill, McIntyre, Bennett and Griffith are included.

Pharmacology

“The chief action of curare is the arrest of all voluntary movement through an interruption of the connections between the peripheral nerves and the striated muscle fibers.

“In the mammal the muscles give way, one after the other, until the animal lies helpless on the ground. Respiratory movements are slow, weak, and jerky. Eventually these cease altogether and asphyxia results. There are no convulsions, owing to the motor impulses being unable to reach the muscles.

“So we can only conclude that the paralysis is peripheral and not central, and may be due to action either on the muscle, the nerve trunk, or the intermediate structures.”

The two commonly used preparations, intocotrin and d-tubocurarine, are described, standardization of each is compared and antagonistic drugs (prostigmine and eserine) are mentioned.

Physiology

“Curare has no action if given by the mouth, owing to its detoxication by the liver. To produce the required effects, therefore, it must be injected either subcutaneously or intravenously. In the former case it takes from fifteen to twenty minutes to act. In the latter from three to five minutes.

“Once in the circulation part of the drug is changed in the liver, but the remainder is excreted unchanged, by the kidneys. The metabolism takes place rapidly and the urine obtained one hour after the injection of 30 mg. of d-tubocurarine is capable of a curarizing action.

“The muscles are affected in the following order:

“Those supplied by the cranial nerves are affected first—face and neck, limbs, back, abdomen, intercostals, and finally the diaphragm. Although according to Cushney the order is first the toes, ears, eyes, later the limbs, head and neck, and finally the muscles of respiration.

“The effect on the eye muscles is to be seen as early as one minute after the intravenous injection of the drug. The peak of curarization is reached after three to five minutes.

“It is thought that the curare produces its curarizing effect by preventing the action of the acetylcholine on the receptor substance of the muscle.”