ABSTRACTS

Editorial Comment: A fixed style of presentation for this department of ANESTHESIOLOGY has purposely not been defined. It is the wish of the Editorial Board to provide our readers with the type of abstract they desire. Correspondence is invited offering suggestions in regard to the length of abstracts, character of them, and source of them. The Board will appreciate the cooperation of the membership of the Society in submitting abstracts of outstanding articles to be considered for publication.

SKOUBY, A. P.: *Sensitization of Pain Receptors by Cholinergic Substances.* Acta Physiol. Scandinav. 24: 174–191 1951.

"Previous investigations showed, that the number of reacting cold spots in the skin of the forearm was altered by local application of small amounts of cholinergic drugs. A similar reaction occurred when the choline esterase of the skin was inhibited by prostigmine. The change in number of cold spots was interpreted as being due to a direct effect of acetylcholine either on the cold receptors or on the nerve fibres connected with them. In the present paper, the influence of cholinergic drugs upon the pain threshold of the skin was examined in order to investigate whether the effect upon the cold spots is specific to the cold receptors or an effect common to several types of peripheral receptors. It seems well established that the receptors for pain are free nerve endings . . . and therefore must be assumed to have a simpler structure than the Krause end bulbs supposedly the specific receptors for cold. As in previous investigations the effect of acetyl-beta-methyl-choline, acetylcholine, atropine and prostigmine was examined. . . . Determinations of the pain threshold temperature for the skin can be repeated with a deviation less than 0.1 C. The pain threshold temperature for the skin of the forearm in normal subjects has been examined before and after the application of acetyl-beta-methylcholine chloride, acetylcholine chloride, prostigmine (Roche) and atropine sulphate. The substances were applied in isosmotic solutions, either by intracutaneous injection in NaCl solutions beside the area to be examined, or by iontophoresis, when dissolved in alcohol directly on the test area.

"Control experiments were performed on the same subjects, using injections of 0.9% NaCl and iontophoresis with hydrolysed acetyl-beta-methylcholine in a 5% alcoholic solution. Acetyl-beta-methylcholine iontophoresis with hydrolysed iontophoresis with concentrations of 1 : 100–1 : 1,000 caused statistically significant decreases in the pain threshold temperature. The largest decrease (3.5–5.5 C.) were found in the first determinations and when the highest concentrations were used. Uniform results were obtained on different areas of the single subject, while considerable individual differences in the effect were noticed. Intracutaneous injection of small amounts (1–40 μg.) produced a decrease in the pain threshold, while larger amounts (100–300 μg.) evoked an increase, which was followed by a return to the normal value. Acetylcholine injection (0.1–1 μg.) produced significant decreases in the pain threshold. The effect disappeared within few minutes. Prostigmine injection ($0.5 - 1 \times 10^{-1} - 10^{-2}$ μg.) produced significant decreases in the pain threshold temperature after several minutes and of long duration. Atropine sulphate injection (50 μg.)

produced, after 10–30 minutes, significant increases in the pain threshold temperature. The dissociation between flushing of the skin and skin temperature on the one hand and the changes in the pain threshold on the other indicates that the latter cannot be secondary to the change in the vessels, humidity or temperature of the skin, but must be attributed to a direct effect of the acetylcholine either on the pain receptors or the nerve fibres connected with them. The experiments with prostigmine and atropine indicate that changes in the concentration of the active acetylcholine normally liberated in the skin may influence the sensitivity to pain. It is, therefore, possible that the activity of the pain receptors is influenced by changes in the acetylcholine content of the skin. The mechanism of such a regulation is discussed."

A. A.

McCULLOCH, J. F.: *The Choice of Anaesthesia in General Practice.* Bull. Post-Grad. Comm. Med. Univ. Sydney **5**: 82–85 (July) 1949.

"The choice of anaesthesia in general practice may depend on several factors. . . . The nature of the procedure may help to determine the choice of an anaesthetic technique. Such a choice may be of a negative character—what not to give. . . . Surgery may give the patient his only chance of survival, and in such cases anaesthesia should not be withheld even if the risk is great. Well-administered 'open ether' with adequate oxygen may be the most satisfactory choice. Intestinal obstruction may present urgent problems and the condition of the patient is often very bad. Good relaxation is essential, but sometimes difficult to achieve with safety. Regurgitation of gastric contents may be a major hazard. Spinal anaesthesia is regarded, particularly by many surgeons, as being the most satisfactory technique. . . . At the opposite end of the scale of risks is the healthy, robust, nervous patient. Many such patients are ether-resistant, and spinal anaesthesia, if otherwise suitable, may save a great struggle. . . .

"Making the best use of what offers is important; but the presence of some general utility machine, like a McKesson or Heidbrink, which can be used in so many different ways, gives a great sense of support. . . . It is usually better, when confronted with a difficult or worrying case, to stick to a simple and everyday technique rather than to attempt something unfamiliar and ambitious. . . . A well-given 'open ether' anaesthetic with adequate oxygenation is much better than a "black gas.'"

A.A.

HERTZ, ROY; ALLEN, M. J.; TULLNER, W. W., AND WESTFALL, B. B.: *Surgical Anesthesia in Rabbit and Dog with Intravenous Amphenone B.* Proc. Soc. Exper. Biol. & Med. **79**: 42–43 (Jan.) 1952.

"We have previously reported that Amphenone 'B' has a potent depressant action on the central nervous system of the rat. We now report the experimental use of intravenously administered aqueous solutions of this compound to induce complete surgical anesthesia in the rabbit and dog. . . . The behavior of these animals during the course of these observations warrants the conclusion that Amphenone 'B' possesses a sufficiently profound depressant action on the central nervous system to abolish pain response in the rabbit and dog. . . . The margin of safety is sufficient to permit complete anesthesia without major respiratory depression and with rapid recovery. The combination of endocrinological and anesthetic properties of Amphenone 'B' parallels that previously observed for progesterone and other steroids."

A. A.