

drugs, presumably due to more prolonged and constant absorption. . . . The peak of threshold-raising action is reached approximately 20 minutes after the intravenous administration of any of the commonly used opiates, although the peak of narcotic or stupefying action is obtained within 2 to 3 minutes. The patient suffering acute and intolerable pain should be given the benefit of this method of administration. The method is safe providing dilute solutions are administered slowly. The duration of action following intravenous administration is significantly less than when the same quantity is administered subcutaneously or intramuscularly. This is due to the immediate onset of detoxification which is now known to be largely by urinary excretion. . . .

"As has been pointed out clearly by Wolff and his co-workers, numerous situations exist in which pain perception may be dissociated from the usual pattern of reaction to the pain experience; for example, the indifference to pain often experienced during play or combat, sexual excitement, parturition, or in religious practices. Under these circumstances pain is perceived but the usual reaction, anxiety, fear, panic, flight or fight, is not forthcoming. The opiates possess better than any other class of drugs the capacity to alter the pattern of reaction to pain. . . . Scopolamine has no effect on the pain threshold. Nevertheless, it does modify the reaction pattern and thereby reduces the psychic trauma associated with the pain experience. It is especially useful in enhancing this most valuable action of the opiates. . . . Since sleep alone elevates the pain threshold approximately 50 per cent, the barbiturates may be effective against lesser grades of pain only in so far as they induce sleep or unconsciousness. They do not possess to any significant degree the specific property of modifying pain

perception if given in hypnotic doses. . . . With a dose which is just sufficient to carry the patient to the borderline of consciousness, any painful stimulus may evoke an exaggerated reaction pattern of flight or fight, since cerebral inhibitions are removed but the pain threshold has not been altered. Morphine is the only compound which will control this type of reaction, but it is necessary to emphasize the fact that the summative depressant action of these two drugs on respiration is often undesirable. In closing, I should like to emphasize that since the perception of pain is subjective, the reaction pattern will be modified greatly by the pre-existing psychic state of the individual. In a real sense, therefore, the complete control of pain becomes a psychologic and psychiatric problem as well as one involving the *materia medica*." 2 references.

J. C. M. C.

NOVAK, MILAN: *The Use of Sulfonamide Derivatives: As a Solution to the Problem of Bacterial Contamination in Stored Plasma*. *J. A. M. A.* **118**: 513-515 (Feb. 14) 1942.

"Bacterial contamination has been the most serious obstacle to the preservation of plasma in the liquid state. . . . We have instituted the use of the sulfonamide group of drugs in stored plasma as bacteriostatic and bactericidal agents. In all of my experimental work and in actual routine clinical usage over a two year period the method has been found to be completely satisfactory regardless of the temperature (4 C.-24 C.) or duration of storage. The quantity of the drug necessary to accomplish the purpose in stored plasma is small, so that there are no noteworthy contraindications to its routine use. . . . The addition of 0.2 per cent of a sulfonamide derivative, preferably sodium sulfathiazole, in plasma completely eliminates the problem of bac-

terial contamination, since it actually sterilizes minimally contaminated specimens of plasma regardless of the organism or the temperature involved. . . . Plasma preserved with sodium sulfathiazole is safe, immediately available, economical and simple to use. Elaborate and expensive methods for routine processing of plasma are unnecessary in most hospitals." 9 references.

J. C. M. C.

MOORE, R. M., AND WINGO, W. J.: *Blood Level of Magnesium Ion in Relation to Lethal, Anesthetic, Analgesic and Antitetanitic Effects*. *Am. J. Physiol.* 135: 492-495 (Jan.) 1942.

"The present study concerns 1, the fatal blood level of magnesium ion; 2, the respiratory nature of death caused by magnesium administration; 3, the antagonism of calcium and magnesium, and 4, the serum level of magnesium necessary to prevent pain reactions elicited by intra-arterial injections of potassium chloride. Furthermore, although only one case of tetanus was available for study, by administering to normal patients the dose of magnesium sulfate found effective in tetanus we have estimated 5, the antitetanitic blood level of magnesium ion. . . . Experiments were performed upon 70 cats and upon 6 dogs, anesthetized with a barbiturate (sodium amytal, nembutal) or with ether. . . .

"Continued intravenous administration of magnesium salts to cats and dogs produces anesthesia. In cats with preliminary etherization death from sudden respiratory collapse occurs at serum magnesium concentrations averaging 33.0 mg. per 100 cc. In cats in which magnesium administration is combined with light sodium amytal or nembutal anesthesia the lethal serum concentration is distinctly lower, averaging 24.7 mg. per 100 cc. Essentially similar results are obtained in dogs.

Higher serum magnesium concentrations are tolerated if respiration is maintained artificially or if calcium salts are administered. If magnesium administration is terminated before death, the animal survives, apparently uninjured. With preliminary ether anesthesia, serum magnesium concentrations of about 15 mg. per 100 cc. prevent pain reactions elicited by skin incision or by intra-arterial injection of an isotonic KCl-NaCl mixture containing 0.46 per cent KCl. Serum concentrations of about 23 mg. per 100 cc. provide satisfactory surgical anesthesia and prevent pain reactions from intra-arterial injection of a mixture containing 0.8 per cent KCl. Near-fatal concentrations are required to prevent reactions to the strong stimulation of pure isotonic KCl (1.15 per cent). In contrast, with combined barbiturate and magnesium anesthesia, the magnesium concentrations required for these effects are significantly lower. From studies in one case of tetanus and in normal patients given magnesium sulfate in doses used in tetanus, it appears that dangerously high serum concentrations of magnesium are not required for effective antitetanitic action." 6 references.

J. C. M. C.

MILEY, GEORGE: *The Knott Technic of Ultraviolet Blood Irradiation in Acute Pyogenic Infections: A Study of 103 Cases with Clinical Observations on the Effects of a New Therapeutic Agent*. *New York State J. Med.* 42: 38-46 (Jan.) 1942.

"For the past two and one-half years in 103 unselected cases of acute pyogenic infection we have successfully used the Knott technic of ultraviolet blood irradiation therapy as a method of controlling infection. This technic consists of withdrawing and citrating a carefully predetermined amount of a patient's blood and immediately pass-