sleep often lasting for several hours. Pain is absent during this period; hence postoperative medication is materially reduced. Moreover, in the language of Edwards, “the events of the next twen-
ty-four to thirty-six hours will not be remembered, and the whole horrible business of being anesthetized and recovering thus not only diminished in fact but minimized in retrospect.”

EVIPAL SOLUBLE FOR THE CONTROL OF CONVULSIONS FROM NOVOCAINE POISONING

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The results of laboratory studies to determine the antitodal value of various drugs for symptoms of poisoning following the use of cocaine as a local anesthetic, were published by Tatum and his collaborators in 1925.1 Their research proved that the barbiturate sedatives then available had remarkable effect in increasing the minimal lethal dose of cocaine for dogs, and in controlling convulsions resulting from overdosage.

In recent years, the value of the preoperative use of such drugs in increasing the tolerance for local anesthetics of the cocaine-procaine group has been repeatedly emphasized in medical literature by Miller,2 Waters,3 Lundy,4 Maloney,5 and other well known authorities on anesthesia. The specific anti-spasmodic property of the barbiturates is now noted for the possible event of convulsions developing from individual low tolerance for, or overdosage of, local anesthetics.

Since the subcutaneous use of cocaine has been generally discarded in favor of the less toxic drugs of the procaine group, serious reactions are far less common, despite the modern greatly increased use of local anesthesia. When used in the dilute 0.5 per cent solution, large quantities of the fluid can generally be injected quite safely into the body tissues, as needed for the adequate control of pain during surgical operations. However, toxic symptoms may appear in patients whose tolerance for the drug is low. As described by Maloney,5 the value of the barbiturates under these circumstances is probably limited to the symptoms arising from overdosage by the relatively slow absorption method from local infiltration of normal tissues. The toxic effects are those of stimulation—apprehension, excitement, increased rate of respiration, and clonic convulsions. If not corrected the condition will progress to respiratory failure and death.

When absorption of the anesthetic is abnormally rapid, due to the injection of the drug into a very vascular area or, accidentally, directly into a vein, the toxic symptoms are sudden onset of acute circulatory depression and failure, with pallor and syncope. Under these circumstances stimulation rather than sedation is indicated.

For the treatment of convulsions, warning is given of the importance of adjusting the dose of the antidote most carefully,5 as the margin of safety be-

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tween controlling the convulsions, when severe, and stopping just short of respiratory collapse, is very narrow. Moreover Tatum demonstrated that the toxic dose of cocaine from which dogs could recover was inversely proportional to the duration of the convulsions. For these reasons it is evident that a quick-acting barbiturate such as Evipal soluble, given by the intermittent method intravenously, and so kept under close control, should be of great value. It can be augmented safely by repeated small doses of a less toxic preparation given intramuscularly, thus combining sensitive control of a convulsive state and more prolonged sedation.

From a rather cursory survey of the recent literature, I have been able to find only one report of the clinical use of Evipal soluble for the control of convulsions resulting from a local anesthetic; in this instance the drug was cocaine and the patient an elderly man. I have now to report the effective use of Evipal soluble in the case of an infant who developed convulsions from an overdose of Novocaine.

The patient, a white male three months old, in fair general condition, was brought to the operating room for repair of a congenital meningocele, involving all of the lumbar vertebrae. During the preparation of the operative site he was crying and very active. Novocaine, 170 cc. of 0.5 per cent solution, with adrenalin, was injected intracutaneously and subcutaneously. Rather suddenly the infant lapsed into a state of unconsciousness with convulsive movements of the head, face and arms developing into generalized clonic convulsions, with moderate cyanosis of the lips and hands.

Treatment: A clear airway was assured and oxygen given continuously. Sodium luminal grain $\frac{1}{2}$ was injected intramuscularly, followed by grain $\frac{1}{20}$ and grain $\frac{1}{100}$ respectively at 15 minute intervals. Convulsions continued. A 5 per cent solution of Evipal soluble was then injected very slowly into a vein of the scalp: when 25 milligrams of the drug had been given, the convulsions stopped, and did not recur. The child remained quiet except for more or less continuous movements of his arms, especially when handled for any purpose. Half an hour later he was sleeping quietly. The operation was postponed indefinitely and the patient returned to the ward.

The next day the infant developed symptoms of an acute cold—coryza, sneezing and cough. Fever up to 101 degrees Fahrenheit continued for the next four days, after which the vital signs returned to normal.

Eight days after the first attempt the operation was performed, the meningocele excised and the defect closed. Local anesthesia with a similar solution of Novocaine and adrenalin, but far less in quantity, was used. The child withstood the operation very well and the postoperative course, from the surgical standpoint, was smooth. He was discharged "improved" on the seventeenth day postoperative.

Early oxygen therapy is of considerable importance for a convulsive state which interferes with a satisfactory respiratory exchange; this is more effective when oxygen is given by a face inhaler under slight positive pressure. A free airway should be assured by the previous insertion of an oral tube of the tongue depressor type, or, if the teeth are too tightly clenched for this, a rubber tube with several outlet holes inserted through one nostril into the nasopharynx. The addition of carbon dioxide is contraindicated in a condition of temporary acute interference of respiratory exchange which
causes a continuous increase in the alveolar carbon dioxide pressure.

Summary: A brief comment on the antidotal effects of the barbituric acid sedative drugs in relation to local anaesthetics is presented, with the report of the control of convulsions, occurring under local anesthesia, in the case of an infant.

REFERENCES

HORACE WELLS DISHONORED IN RENÉ FÜLÖP-MILLER’S BOOK—“TRIUMPH OVER PAIN”

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Réne Fülöp-Miller, in his otherwise excellent book, “Triumph Over Pain,” a story of anesthesia, is inaccurate and incomplete in his description of the life and activities of Horace Wells and his claim of being the discoverer of anesthesia.

Early History of Horace Wells

The early history of Wells is practically ignored except for this incorrect statement on page 107: “On qualifying as a dentist in 1842, Wells entered into partnership with another dental surgeon a little younger than himself, Wm. Thomas Green Morton. Full of hope the two young men opened an office in Boston.”

The truth is that Wells studied dentistry with leading dentists during 1834 and 1835 in Boston and started to practice in Hartford, Connecticut, in 1836. This was six years before 1842 as stated by Fülöp-Miller. In 1841 and 1842 Wm. Thomas Green Morton, who was practicing in a nearby town of Farmington, Connecticut, came frequently to Dr. Horace Wells to recite and obtain assistance in his dental studies. Wells by this time was the head of his profession in Hartford by reason of his “activity, intelligence, inventive genius, mechanical talent and skill”.

Estimation of Horace Wells

Fülöp-Miller throughout his book slowly and subtly creates the character of Wells as an intellectually stupid, shiftless, clumsy, morally degraded person by minutely describing the unfortunate, sordid circumstances surrounding Wells’ death and with other statements like these: “Having dissolved his partnership with Morton, Wells returned to Hartford. There, too, he made a poor job of it. To be successful, a dentist had to have specialized skill and knowledge which would give him an advantage over his competitors. Wells