

ence for meperidine hydrochloride over morphine.

"Himmelsbach stated that addiction to the opiate drugs embraces three related phenomena. First, tolerance; or the gradual decrease in the effect produced by the repeated administration of a drug; second, physical dependence, which is manifest by the appearance of a characteristic illness if the drug is withheld; and third, habituation, or psychic dependence, which implies an intense desire for the repetition of pleasurable effects associated with the use of a drug.

"Meperidine hydrochloride should be regarded as an addicting drug in the same class as the opiates because all three phenomena have been shown to occur after its use." 7 references.

C. H. G.

LASZLO, A. F.: *Laryngeal Complications After Thyroid Operations*. Am. J. Surg. **73**: 62-68 (Jan.) 1947.

There are two groups of postoperative complications, the first dealing with the voice changes and the second the changes in breathing. All in all it is the latter group which has the highest mortality. Laryngeal innervation is discussed, the inferior laryngeal supplies all of the laryngeal muscles with motor fibers, except the cricothyroid muscle. The superior laryngeal carries sensory fibers in the strong external portion of the larynx and motor fibers in the weaker internal portion to the cricothyroid. The lowest branch of the superior laryngeal joins with the medial branch of the inferior under the mucosa which covers the cricoarytenoid posterior muscles. Both of the laryngeals have connections with the sympathetics.

By far the most important injury is to the inferior (recurrent) laryngeal nerve, which supplies the abductors of the cords. Injury to the interarytenoid muscle, (supplied by the superior) is

the second most severe injury. Injury to the cricothyroid muscle, (supplied by the superior) is also severe since it is this muscle which determines the ultimate position of fixed vocal cords. In case of complete recurrent paralysis the cricothyroid maintains the median position of the cords.

Spasmodic cough, inability to evacuate mucus, and disturbance of deglutination follow injury to the superior laryngeal nerve. This nerve is easily injured during the ligation of vessels. In about 10 per cent of the cases coming up for thyroid surgery laryngeal inspection reveals paralysis of one cord without the patient or doctor being aware of the condition. The recurrent nerve is very sensitive to pressure.

In case of injury, early electric stimulation may restore the function of the nerve. However, severed nerves have led to atrophic degenerative changes in the muscles. 20 references.

P. C. K.

WIKLE, H. T., AND RYAN, R. J.: *Convulsions Occurring Under Anesthesia: Analysis of Six Cases*. Am. J. Surg. **73**: 83-86 (Jan.) 1947.

Convulsions during anesthesia are rather uncommon but it is important for physicians to be on the alert to treat these occurrences and prevent them if possible. Six convulsions during anesthesia were encountered in one year in which 2,142 anesthetics were administered on the surgical service of the Cumberland Hospital, Brooklyn.

The etiology is extremely vague. The literature is replete with possible causes, many of which contradict each other, thereby making the situation more confusing.

Despite lack of knowledge concerning the causative factors, strict attention should be given to the preoperative care of patients, particularly those

who are acutely ill and toxic, thereby very likely lessening the number of convulsions during anesthesia. In the literature, the incidence of convulsions associated with spinal anesthesia is negligible compared to that with inhalation anesthetics. It is worth while to consider the use of spinal anesthesia in these toxic patients.

The authors recommend the prompt use of sodium pentothal as advocated by Lundy. Heretofore, the mortality in patients having convulsions during anesthesia was extremely high. With sodium pentothal at hand, this figure should be lower. There was only one death among the six patients herein presented and this was attributable, not to the convulsion but to hepatorenal failure on the fifth postoperative day.

M. F. P.

BURSTEIN, C. L.: *Misuse of Adrenalin and Coramine: Altered Drug Effects During Anesthesia.* *Am. J. Surg.* **73**: 102-103 (Jan.) 1947.

"As regards resuscitative drug therapy during general anesthesia, it has been pointed out that adrenalin and coramine have been greatly misused. Their efficacy in the unanesthetized subject is not contested, but in the anesthetized subject they may become detrimental. The cardiac conducting mechanism becomes sensitized during general anesthesia; and with certain agents, particularly chloroform and cyclopropane, this sensitization is so great that sub-therapeutic doses of adrenalin injected into the circulation may cause death following the production of ventricular fibrillation. Adrenalin injected into the heart during anesthesia in cases of cardiovascular collapse has proved to be fatal in every report encountered by the author.

"Adrenalin used locally in the operative field to aid hemostasis, because

of its vasoconstrictor action, is another serious misuse of the drug during general anesthesia. . . .

"Coramine also shows varied effects depending upon whether it is used in the unanesthetized or anesthetized subject. In the subject anesthetized with a barbituric acid derivative, it has been shown experimentally that the administration of coramine will aggravate rather than diminish respiration and circulatory depression. The same untoward effect may occur clinically and was, in fact, observed during a study of clinical experiences with various analeptics.

". . . During general anesthesia, which entails some depression of the central nervous system, the intravenous injection of procaine is less apt to produce central nervous system stimulating effects. Its influence in reducing cardiac irritability can then be employed advantageously as has been demonstrated during certain intrathoracic procedures. . . .

". . . The intracardiac injection of adrenalin in a patient during general anesthesia should be avoided. Resuscitative measures are best confined to artificial respiration with oxygen through an endotracheal tube connected with carbon dioxide absorption. The resulting bellows action on the lungs by rhythmic, graded, manual pressure on the breathing bag is also beneficial as a form of cardiac massage. Manual cardiac massage is a definite worthwhile procedure to be used wherever applicable." 14 references.

E. L. S.

HANDLEY, CARROLL A., AND TELFORD, JANE: *The Effect of Digitalis on the Fluid Distribution on the Body.* *J. Pharmacol. & Exper. Therap.* **89**: 97-100 (Jan.) 1947.

The purpose of this study was to determine the peripheral effect of digitalis. In the method used, the plasma