

neural junction of voluntary muscle. These effects are easily reversed by neostigmine or physostigmine. Flaxedil differs from d-tubocurarine in having little paralyzing action on autonomic ganglia. Its main pharmacological properties are: (1) Flaxedil is about one-third as potent as curare. The ratio of the curarizing dose to the dose arresting respiration is 1 to 1.7 with Flaxedil and 1 to 1.5 with d-tubocurarine. (2) The neuromuscular blocking effect of Flaxedil is easily reversed by prostigmine or physostigmine. Flaxedil has no eserine-like action. (3) With adequate oxygenation there is no vasodepressor effect even with many times the paralyzing dose. (4) Flaxedil liberates less histamine (1/5 - 1/2) than d-tubocurarine in isolated tissues. (5) Flaxedil has little paralyzing effect on autonomic ganglia. While 1 mg. d-tubocurarine inhibited movement of nictitating membrane in anesthetized cats subjected to preganglionic cervical sympathetic stimulation, 100 mg. Flaxedil had only a slight effect.

The effect of Flaxedil is enhanced by curare. Recovery from a paralyzing dose is achieved in twenty minutes. There is a somewhat greater margin between the dose completely paralyzing voluntary muscle and the dose arresting respiration than there is for curare but less than that for bistrimethylammonium decane.

In experiments on conscious adult human volunteers tested for muscle strength mechanically it was found that

(1) Doses of 40-70 mg. (about 1 mg./kilo body weight) injected intravenously caused complete paralysis of flexor muscles of forearm and muscles of abdominal wall in four minutes.

(2) Paralysis passed off in twenty-five minutes with no after-effects.

(3) This dosage did not demonstrably decrease pulmonary ventilation

although there was some intercostal paresis.

(4) The paralysis was rapidly and completely neutralized by intravenous injection of prostigmine.

(5) There were no pronounced blood pressure changes.

(6) With complete paralysis of forearm muscles there was loss of plantar reflex.

(7) Sweating was not marked and no cyanosis developed although no respiratory assistance was given.

The drug has been used in 45 patients with ether and cyclopropane in doses of 100 to 120 mg. Eighty milligrams of Flaxedil are roughly equivalent to 15 mg. of tubarine. The drug is rapidly eliminated in anesthetized and artificially respiring cats and rabbits given three to ten times the curarizing dose, thirty to one hundred per cent being recovered from urine in two hours.

C. S. J.

PERZIK, S. L.: *Anesthesia in Head and Neck Surgery: The Surgeon's Viewpoint*. Ann. West. Med. & Surg. 2: 461-462 (Oct.) 1948.

"From the surgeon's viewpoint an ideal anesthetic arrangement would be the following: The position of the patient on the operating table should be such that the head and neck may be exposed entirely or in part. The needed exposure is made possible because several avenues are available for the passage of the intratracheal tube, namely, the nose, mouth or trachea. When the entire head and neck make up the field of operation, a sterilized tube can be passed through a low tracheotomy incision by the surgeon. Mobility of the part is another important objective. . . . Free access to the field of operation by all the surgical partners is an important requirement. . . . All movements in the area of op-

eration should, of course, be passive and not active. . . . There must be a free and clear airway. . . . Rapid postoperative recovery, with the patient coughing at the completion of the operation and immediately after the intratracheal tube has been removed, is most desired. . . . Finally, the head and neck surgeon, in company with his colleagues in other surgical fields, is desirous of relegating responsibility for the general condition of the patient to the anesthesiologist."

J. C. M. C.

WEST, G. B.: *Injections of Adrenaline and Noradrenaline and Further Studies on Liver Sympathin*. Brit. J. Pharmacol. 3: 189-197 (Sept.) 1948.

"The pressor effects of dl-noradrenaline and l-adrenaline, injected into the jugular, femoral, and splenic veins and the splenic and external iliac arteries of cats and rabbits, have been examined. . . . Adrenaline was less active by portal than by jugular vein, though the ratio value for equipressor doses by these routes decreased as the pressure rise increased. Noradrenaline was less active by portal than by jugular vein, but the ratio value remained constant. . . . When injected into the portal circulation, noradrenaline was not potentiated by the simultaneous administration of guanidine or cocaine whereas equipressor doses of adrenaline were enhanced. Noradrenaline therefore is not rapidly absorbed from the blood stream during its passage through the liver. . . .

"Intra-arterial and intrajugular injections of adrenaline and noradrenaline were not potentiated by the simultaneous administration of intra-arterial or intrajugular guanidine, but both were enhanced by cocaine. . . . Guanidine or cocaine in suitable intraportal doses do not potentiate the action of liver sympathin. After large

intraportal doses of dihydroergotamine, hepatic nerve stimulation and small intraportal doses of noradrenaline produced depressor responses, when corresponding doses of adrenaline were without effect. . . . When injected into the artery supplying the caudal end of the spleen, adrenaline produced a depressor response, possibly due to the liberation of histamine. Noradrenaline, on the other hand, produced a pure rise of blood pressure."

J. C. M. C.

FASTIER, F. N., AND REID, C. S. W.: *Circulatory Properties of Amidine Derivatives. II. Potentiation of the Vasoconstrictor Action of Adrenaline*. Brit. J. Pharmacol. 3: 205-210 (Sept.) 1948.

"A capacity to enhance the pressor action of adrenaline in anesthetized animals is almost as conspicuous in methyl isothiourea and its nearer homologues as their own pressor activity. . . . A more intensive study of the activity displayed by these compounds has indicated how . . . contrasting observations may be reconciled. An appreciation of the ambivalent character of typical amidine derivatives goes a long way towards explaining differences in effects upon sensitivity to adrenaline, outstanding though these may appear superficially. . . . It has been shown for the first ten isothioureas (n=0-9) of general formula:



that either sensitization or desensitization to the vasoconstrictor action of adrenaline in the pithed rat hind-quarters preparation may be observed after their administration, according to the experimental conditions employed. . . . Which effect is produced seems to depend mainly upon dosage. . . . Experiments with various other strongly basic amidine derivatives. . . . sug-