Donnatal has been used at the Beth David Hospital. "Donnatal has the following formula: hyoscyamine sulfate 0.1037 mg., atropine sulfate 0.0194 mg., hyoscine hydrobromide 0.0065 mg., phenobarbital 16.2 mg. (gr. ⅓). This combination has lent itself well to this study." The series was made up of 100 cases given donnatal and a control group of 95 cases. It was found that this preparation had a good antispasmodic effect without the toxic side actions of the individual drugs of the belladonna group. Most of the patients who made up this series were cases of gastrointestinal spasm of the vagotonic variety and thus lent themselves to the use of this preparation. Donnatal seems to be more effective than either atropine or belladonna alone and also more effective than the synthetic preparations. 21 references.

F. A. M.


In order to determine whether curare could safely be used to produce apnea in intrathoracic operations, the physiologic effects of the drug on dogs was studied. A series of 50 dogs was given enough curare to produce apnea for two to eight hours. Artificial respiration with oxygen was carried on manually. It was concluded that:

1. Curare of itself does not cause death in apneic doses.
2. Artificial respiration must be continued until intercostal muscles are contracting strongly to prevent death from atelectasis.
3. Vision and hearing are present after curarization and the reflex arcs are intact.
4. Twitching of the platysma (apparently less affected than other muscles) was the first sign of recovery.
5. A rise in blood sugar and glycosuria occur.
6. In the electrocardiograph, QRS voltage is decreased and T-waves are variable, the tracing resembling that of potassium poisoning. Following curare, a marked lowering of potentials with slight dysrhythmias were observed.
7. No change in reaction occurred after repeated administration of the drug. Neither increased tolerance nor sensitivity appeared.
8. Curare does not pass the placental barrier or paralyze uterine musculature.

The apneic technique for clinical use is described. After heavy medication with morphine, scopolamine and barbiturate, induction is performed with nitrous oxide. Curare is given, an intratracheal tube placed and artificial respiration carried out. Respiratory arrest is maintained while the pleura is open. The signs of light anesthesia are: diaphragmatic contractions, slight muscle twitching, movement of the facial muscles, and rise in blood pressure. Treatment is by means of administration of additional morphine intravenously. To terminate apnea, patient is allowed to build up carbon dioxide. Augmented respiration is continued until the intercostals are functioning adequately. Fill the bag with air, aspirate secretions before removing the tube. Do not remove the tube or stop artificial aid to respiration until the intercostals are fully active, or atelectasis invariably occurs. Muscular weakness persists for some hours. The after care is important and frequent turning, coughing and deep breathing are encouraged.

The advantages of this technique are that cauterity may be used, profound relaxation is produced, respiration is
controlled, fewer postoperative complications occur and earlier discharge is possible. Masking of the signs of anesthesia and bouts of diaphragmatic contractions (vomiting?) are disadvantages. The intravenous administration necessitates extra equipment and personnel, trained anesthetists are required, and routine intratracheal intubation must be used.

Experimental work on patients receiving large quantities of curare resulted in the following observations: An immediate and transient drop in blood pressure occurs. There is no significant change in the electrocardiograph. A slight decrease in liver function postoperatively was found, but kidney function was unchanged. The blood sugar rose on an average 13 mg. per cent. Consciousness was not lost. Gross and Cullen's report of dilatation and atony of the intestine was confirmed, as was their observation that morphine will prevent this dilatation of the intestine. Normal fetal reflexes were present and the uterus contracted normally. Prostigmine was completely without effect after the administration of large doses of curare over long periods of time. Two deaths occurred after chest operations due to inability to cough. Lack of support of the chest wall rather than muscular weakness was thought to be responsible.

The indications for this technique are:

1. Intrathoracic operations with cautery.
2. Intra-abdominal operations when profound relaxation is needed and spinal or deep inhalation anesthesia is contraindicated.
3. Emergency situations.

The prerequisites for the proper administration of curare include:

1. A thorough knowledge of respiratory physiology.
2. Ability to give proper inhalation anesthesia.

3. Experience with the action of curare in unanesthetized animals.

Further investigation is needed on the lethal dose of curare, its action on the uterine muscles and passage of the placenta in humans, and the production of unconsciousness, analgesia or both.

M. F. P.


The best treatment of shock is prevention. Dehydrated animals succumb to hemorrhagic shock sooner than well-hydrated ones and tolerate concentrated plasma or albumin solution less than well-hydrated. Dehydrated patients are poor operative risks. Adequate plasma albumin level is an important factor in the retention in the circulation of infused saline solution. The value of preinfusion should be weighed before major operations.

The condition of animals with regard to their resistance to shock could be estimated by determining the arterial carbon dioxide content thirty minutes after hemorrhage. The following modifications of the graded hemorrhage employed in different groups of animals: 1. Preinfusion of an amount of fluid equivalent to 15 per cent of the control plasma volume. 2. Infusion of an amount of fluid equivalent to 15 per cent of the control plasma volume in addition to 23 per cent routinely administered at the time of the first reinfusion. The preinfusion fluid was either saline 0.9 per cent or gelatin solution.

The following results were obtained: Arterial plasma carbon dioxide values, taken one-half hour after a rapid hemorrhage of 25 per cent of the meas-