

frequently expressed belief that apomorphine may cause vomiting with little nausea. In our animals, dogs given apomorphine soon after eating a meal, commonly eat the vomitus immediately. This would hardly be possible if the animals were truly nauseated.

Summary: 1. The development of a green color in old (1 week to 1 year) apomorphine hydrochloride solutions appears to be accompanied by no qualitative or quantitative changes in the pharmacological actions of the drug.

2. Dogs receiving an emetic dose of apomorphine daily for 4 months exhibit no tolerance or hypersusceptibility. *No nauseant conditioned salivary reflex similar to that of morphine appears.*

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Chloride and Water Excretion After Intraperitoneal Administration of Salt Solution.

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Since Blackfan and Maxcy¹ pointed out the advantages of administering saline solution intraperitoneally in dehydrated infants, the method has been widely adopted, and is regarded as a most valuable therapeutic measure. If isotonic or slightly hypotonic solutions of saccharose are injected intraperitoneally in rabbits, in amounts of 100 ccm., a considerable diuresis ensues,² with an increased excretion of sugar. As a consequence we were interested in determining the output of water and chloride in acute experiments after similar injections of isotonic saline solution.

Male rabbits weighing between 2 and 2.5 kilos were used throughout the experiments, and were prepared according to methods previously outlined. Food was uniformly given as 200 gm. of carrots, 18 hours previous to each experiment. No additional water was given. A large soft rubber catheter a demeure was used to collect the urinary output. Specimens were collected during 10 minute periods for one hour or more, and at the middle of each 10 minute period 0.2 ccm. of blood was drawn from an ear vein

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¹ Blackfan and Maxcy, *Am. J. Dis. Child.*, 1918, xv, 19.

² Curtis, *Biochem. Z.*, 1925, elxiii, 109.

in a micropipette, for analysis. Chloride values were determined by a modification of the Bang method.

Sixty-one experiments, to determine the normal urinary output and blood chloride of 7 normal rabbits, demonstrate somewhat inconsistent results. In general the urinary output per 10 minute period is low, averaging about 0.2 ccm.—less often it was higher, averaging 1.6 ccm. Whether high or low it tended toward uniformity during the succeeding 10 minute periods. Minor individual differences were apparently associated with the different rabbits. The blood chloride remained fairly constant during each experiment.

Forty-eight similar experiments were then done on the same animals, with the addition of an intraperitoneal injection of 100 ccm. of isotonic sodium chloride solution at body temperature. The injections were uniformly preceded by 2 or more control 10 minute periods, and the urinary volume, chloride concentration, and blood chloride concentration were also determined for 6 or more 10 minute periods following the injection. The chloride concentration of the fluid injected was determined and also after its removal from the peritoneal cavity at the end of an hour. Occasionally no fluid could be obtained through the trochar at the end of an hour. Such a rapid and complete absorption was associated with a diuresis.

Subsequent to such an intraperitoneal administration of saline solution there is usually a slight but definite elevation of the blood chloride. The urinary output of chloride increases but slightly as a rule—in a few experiments, however, there occurred a marked increase. The urine volume as a rule increased but little. In experiments where the output during the control periods was high, there was even a decrease during the ensuing periods. Occasionally a frank diuresis followed. The experiments thus offer a rational basis for the administration of saline intraperitoneally in dehydration states since the large quantities of injected saline rarely cause a diuresis.

The peritoneal fluid removed at the end of an hour always coagulated spontaneously and had a high cell count. It may contain up to 1.5% of albuminous substance.³ The high cell count is doubtless associated with an early inflammatory reaction of the peritoneum.⁴ Occasionally fluid was not obtained for analysis at the end of an hour, otherwise a constant lowering of the chloride concentration of the fluid injected was noted.

Along with the evidence of the entrance of water and chloride

³ Curtis, *Biochem. Z.*, 1927, clxxxvi, 95.

⁴ Denzer and Anderson, *Am. J. Dis. Child.*, 1921, xxi, 565.

into the blood stream, and eventually the tissues, and that of peritoneal irritation, another factor should be considered in evaluating the administration of saline intraperitoneally. If the delta, electric conductivity, chloride and urea concentrations of the fluid are determined at the end of an hour, calculations may be made which reveal the presence of achloride electrolytes and organic crystalloids in the fluid.² These have entered by permeability changes. Thus, while water and chloride enter the blood, other electrolytes and crystalloids are deviated from the blood into the injected fluid. What significance this deviation may have is problematic.

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Autosterilizing Power of the Nasal Mucous Membrane.

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The average rate of disappearance of bacteria sprayed upon the mucous membrane of the nose has been determined for a series of animals, including guinea pigs, rabbits, dogs and humans. The technic finally used was the following: Broth cultures were diluted 1:200 with saline. A spray delivering 0.15 cc. (± 0.01) was used to distribute the bacteria in each nares. A swab touched upon the surface of the respiratory portion of the nose at several places in a uniform manner and streaked well over the surface of an agar plate. This technic was repeated at intervals varying from one minute to one hour. An average of 400 experiments in normal humans, using 42 different subjects is shown in the accompanying graph. The average number of viable bacteria sprayed was 20,000-000. The swab taken immediately after spraying contained an average of 2,000 bacteria. After 5 minutes the number was reduced to about 50 colonies, 10 minutes about 15 colonies, after 15 minutes about 8 to 10 colonies, after 30 minutes about 5 to 10 colonies. At times none were present after this period. After one hour sometimes 1 or 2 colonies appeared, but ordinarily all of the sprayed bacteria were absent from such agar cultures. The same results were obtained with the other animals used by us. There were 185 animal experiments. If the same bacteria are sprayed in the same number in both sides of the nose, immediate swab only being ob-