in normal subjects and in patients with duodenal ulcer. The dosage required to effect maximum acid output has been established and the duration of this response determined.

An augmented histamine test of gastric secretion, based on these findings, is described.

This test, which imposes a uniform and maximum stimulus on the acid-secreting cells, gives consistent results on repeated estimations in any one individual.

An analysis has been made of the results of the test in 25 normal subjects, 103 duodenal ulcer cases, and 20 patients with gastric ulcer.

I am indebted to Professor C. F. W. Illingworth for his direction and helpful criticism throughout this investigation, to Mr. Gabriel Donald for preparing the charts, and to May and Baker Ltd. for presenting generous supplies of anthisan.

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AN ANTIHISTAMINE IN THE FENESTRATION OPERATION FOR OTOSCLEROSIS

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As the window in a fenestration operation is made in the vestibular part of the bony labyrinth, signs of a vestibular disturbance are to be expected after the operation. Thus vertigo, with its associated nausea and vomiting, is a constant and sometimes troublesome early sequel, and plays an important part in determining the length of stay in hospital.

In a unit where the demand for beds is always greater than the number available, there is a constant stimulus to search for some means of increasing the rate of turnover of the beds. For some years now we have employed special head and balancing exercises to overcome the vertigo following operations on the labyrinth (Cawthorne, 1946; Cooksey, 1946), but even with these it was not possible to turn a fenestration bed over in less than two weeks.

Because of the immediate post-operative vestibular disturbance it was our practice to keep patients as comfortable and quiet as possible by means of twice-daily injections of soluble phenobarbitone. The disadvantage of this treatment was that the patients were made very drowsy; and vertigo was rarely sufficiently controlled for them to be fit to move to the gymnasium for exercises in under five days. We therefore started to search for a more effective means of controlling the vertigo without causing too much drowsiness, and this brings us to "avomine" (promethazine-8-chlorotheophyllinate). This contains one of the most active of the antihistaminic drugs, promethazine hydrochloride, combined with theophylline and in a form suitable for ambulant

patients. It was introduced primarily for the treatment of travel sickness, and its success in this condition suggested that it might help in our problem. Campbell (1949) has already reported on the value of another preparation, dimenhydrinate ("dramamine"), after the fenestration operation.

We first used avomine in our fenestration cases in July, 1951, and to date it has been given to nearly 300 patients. Treatment is started as soon as the patient is admitted to hospital, the day before operation. We have found that a dose of 50 mg. three times daily usually suffices, and this dosage is continued for two weeks after operation.

Results

The results of avomine therapy have been striking, and may be summarized as follows.

Post-operative Vomiting.—Formerly vomiting was often troublesome for two or three days after operation. Since the introduction of avomine vomiting is rare once the patient has recovered from the anaesthetic. With regard to the effect of the anaesthetic on the post-operative course, it has been found that the agents used rarely cause vomiting once the patient is fully conscious. The anaesthetics have been given by Dr. V. F. Hall and Dr. S. A. Mason; after premedication with "omnupon" and scopolamine, in half the cases intravenous thiopentone only was used, whilst in the other half this was supplemented with intravenous pethidine and gas-and-oxygen.

Diet.—Because of the vomiting patients rarely ate solid food for the first two or three days after operation. Now they welcome a light diet the day after operation and usually enjoy normal food the day after that.

Drowsiness.—Continued drowsiness caused by prolonged sedation with barbiturates no longer occurs.

Getting Up.—Formerly patients were reluctant to leave their beds within four days of operation, but now they get up on the second or third day.

Exercises.—The head and balancing exercises can now be started in bed the day after operation, and they go down to the gymnasium to join the class on the fourth day. Formerly they were reluctant to do this before the sixth or seventh day.

Walking.—Whereas patients were unable to walk steadily unaided for about ten days, they can do so now as a rule by the sixth day.

Discharge.—Patients are able to leave hospital on the seventh post-operative day, thus enabling a fenestration bed to be turned over each week.

Micturition.—It is not uncommon for patients to have difficulty with micturition following operations on the labyrinth. This complication has become much less frequent with avomine.

Since the introduction of avomine, and although four or five fenestrations are performed each week, not a single patient has had to be kept in hospital longer than seven days because vertigo was not sufficiently controlled. Perhaps the most convincing proof of its success is given by patients who have had a fenestration operation performed on each ear—one before and the other after we started using avomine. Almost without exception they have commented upon how much less disturbing they found the second compared with the first operation. So far we have not observed any unpleasant side-effects, and it has not been necessary to withdraw the drug in any case.

We would like to thank Messrs. May and Baker for providing the avomine used in some cases of this series.

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