be impossible to provide enough of these highly specialized clinics to examine more than a small proportion of the children with cardiac abnormalities. It should not be difficult, however, to cover the country by a series of centres, so that every child in whom any cardiac abnormality is suspected should have the benefit of examination and supervision by a physician specializing in cardiology. In this way much unnecessary cardiac invalidism would be prevented.

Summary

The work of a children's cardiac clinic is described, and a report presented of the first 200 cases seen.

It is suggested that the setting up of similar clinics in areas where they are not already in operation would add to our knowledge and be of great benefit to the children.

I should like to thank Dr. John Matthews, senior school medical officer, Brighton, for his willing co-operation, and Miss V. Amato, cardiographer to the department, for her technical assistance.

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HOG-STOMACH EXTRACT AND CASEIN HYDROLYSATE IN PEPTIC ULCER

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It is notoriously difficult to evaluate the results of treatment in a disease such as peptic ulcer which follows an irregular course of relapse and remission. A spontaneous remission (especially if it should last for several weeks) is apt to be falsely attributed to the method of treatment in operation at the time. A system of study has been evolved in this clinic which would seem to avoid such a fallacy. The purpose of this paper is to describe the experimental method and to illustrate its application by reporting an investigation of two forms of treatment recently advocated—namely, the administration of hog-stomach extract and of casein hydrolysate.

Method of Study

The test substance is administered for three months and then withheld for three months, this sequence being repeated without reference to the presence or absence of dyspepsia. By the end of twelve months there are available for comparison two test periods and two control periods, during which (in the absence of benefit from the test substance) relapses can be expected with equal frequency. It is to be noted that relapses normally terminate spontaneously, and consequently the first improvement after the beginning of therapy must be discounted.

There can be little doubt that, in general, relapses tend to be more frequent in winter than in summer, and for this reason it was felt that the clinical trial should cover the period of a full year. The possibility was foreseen that in

the periods between the administration of the test substance the patients might regard themselves as untreated. To minimize this the proposed plan of treatment was explained at the start; partly through this explanation, and partly through conversation with other patients undergoing the same test, the control periods came to be accepted as an integral part of a planned course of treatment. Finally, patients were interviewed at the same intervals of time during the test and control periods so that the records might have the same degree of precision.

All the patients selected for study had radiological evidence of duodenal or gastric ulceration, and in each case the periodicity of relapse and of remission was well defined. Every patient had had symptoms for many years (average $12\frac{1}{2}$ years) and the chance of spontaneous cure was considered to be remote. No change was made in the customary dietary habits of the patients save in one small group treated by intensive casein hydrolysate therapy (see below). Alkalis were permitted when pain was severe.

Hog-stomach Extract

The beneficial effects of feeding human gastric juice from normal subjects to patients with peptic ulcer have been described by Morrison (1945a). In an attempt to explain the prompt relief of symptoms it was suggested that the normal gastric mucosa is capable of elaborating a principle which protects the stomach from self-digestion and peptic ulceration. Developing this hypothesis, Morrison (1945b) was successful in preventing the occurrence of cinchophen ulcers in dogs by feeding them a preparation extracted from the mucosa and submucosa of the hog's stomach and duodenum. This was done with the intention of providing the "protective factor."

We present the results of a clinical trial of "pepsac," a commercial extract of fresh hogs' stomachs, in patients with peptic ulcer.

Dosage.—Pepsac was administered in doses of one tablespoonful (approximately 30 g.) three times a day in any vehicle palatable to the individual. In order to avoid destruction of any thermolabile active principle the temperature of the mixture was not allowed to exceed blood heat.

Results.—Observations were made on 41 patients (33 duodenal ulcer, 7 gastric ulcer, 1 stomal ulcer), with the following results:

Incomplete trial	..	..	..	..	8
? Incomplete trial or ? failure	..	..	..	..	7
Failure	..	..	..	..	17
Benefit	..	..	..	..	9

The patients given an incomplete trial include six who could not tolerate the preparation and two who defaulted. Seven patients continued to have severe disability, and the trial was abandoned in favour of in-patient hospital treatment; it is a matter of opinion whether these should be classified under "incomplete trial" or "failure." The 17 patients classed as failures (15 duodenal, 2 gastric) experienced no improvement in either the frequency or the severity of their relapses. In the remaining 9 patients (5 duodenal, 3 gastric, 1 stomal) some degree of benefit was obtained: in four of these the relapses became shorter and the remissions longer, and in five the periodicity was unchanged but the attacks were said to be less severe. The chart provides a diagrammatic representation of the clinical progress in two experiments and illustrates the method of study. During the period of investigation only one patient failed to gain weight.

Comment.—In most cases the addition of pepsac to the diet led to no symptomatic improvement despite a gain

in weight. Although the preparation is clearly nutritious there is no evidence that it contains an anti-ulcer factor.

Casein Hydrolysate

Co Tui *et al.* (1945, 1946, 1947) found that hyperalimentation with protein hydrolysate promptly relieved peptic ulcer distress. This benefit was ascribed to the ease with which protein hydrolysate can be assimilated and used for tissue-building, and also to its properties as an antacid.

We present the results of a clinical trial of "casydrol" in patients with peptic ulcer. Casydrol is an enzymic hydrolysate of fat-free whole milk containing approximately equal parts of amino-acids (with polypeptides) and readily assimilable carbohydrate.

Dosage

In one group of patients one heaped tablespoonful of casydrol was given three times a day (approximately 50 g. daily). This amount was considered to be adequate, as our patients regarded casydrol as "medicine" and took it in addition to their normal diet.

In a second group we departed from the method of trial described above in order to repeat the experiments of Co Tui *et al.* (1945). For this purpose seven patients were given casydrol exclusively for seven days. Hourly feeds consisting of four tablespoonfuls of casydrol in warm water were given from 7 a.m. until 9 p.m. The daily intake of casydrol was 600 g., providing a yield of 2,160 calories. On completion of this seven-day intensive course patients were given normal diet with a casydrol feed between meals. For this experiment seven male patients suffering severe duodenal ulcer pain were admitted to hospital. This was considered necessary, as it seemed unlikely that even the conscientious peptic ulcer patient would adhere to hourly feeding of a rather unpalatable mixture in the absence of supervision. Although in hospital, these patients were ambulant for the greater part of each day.

Results

1. Casydrol as a Supplement to Normal Diet.—Casydrol therapy was given to 16 patients (13 duodenal, 3 gastric). Four patients defaulted after six to eight weeks of treatment, during which symptoms had remained unchanged. These patients were regarded as having had an incomplete trial. Ten patients who continued to have pain while on treatment and in whom there was no improvement in the periodicity of relapse and remission were considered to be failures. In two cases a severe relapse was curtailed by the administration of casydrol, but in only one was the remission longer than usual. All patients gained weight

on casydrol therapy, the increase varying between 1½ and 21 lb. (0.68 and 9.53 kg.).

2. Casydrol as Sole Source of Food Nitrogen.—Brief summaries of the seven cases treated by intensive casydrol therapy follow.

Case 1.—Man aged 30. Pain was relieved on the fifth day of treatment, and he remained symptom-free on return to diet plus casydrol. Pain recurred on the 14th day, and he had a haematemesis on the 30th day. Weight gain, 2 lb. (0.91 kg.). (*Failure.*)

Case 2.—Man aged 28. Pain remained unchanged in frequency and in severity at the end of the seven-day course of treatment. Gained 2½ lb. (1.13 kg.). (*Failure.*)

Case 3.—Man aged 25. Symptom-free after 48 hours' treatment. Dismissed without pain on the eighth day. Weight gain, 1½ lb. (0.68 kg.). (*Improvement.*)

Case 4.—Man aged 34. Symptom-free on the fifth day of treatment. Severe recurrence on the last day of treatment. Continuous pain for the next six weeks. Gastrectomy advised. Weight gain, 3 lb. (1.36 kg.). (*Failure.*)

Case 5.—Man aged 42. Very severe pain, unchanged after three days' treatment. Gastrectomy performed for duodenal ulcer. (*Failure.*)

Case 6.—Man aged 31. Pain still present after treatment but less frequent and less severe. Improvement maintained for six weeks. Weight gain, 4 lb. (1.81 kg.). (? *Improvement.*)

Case 7.—Man aged 45. Pain unchanged after seven-day course of treatment. Weight gain, 1½ lb. (0.68 kg.). (*Failure.*)

Comment.—The addition of casydrol to the customary diet led to symptomatic improvement in only two out of 12 patients despite a gain in weight in all. Co Tui reported that in 27 cases with pain as the presenting symptom hyperalimentation with "amigen" and "dextri-maltose" as the sole source of nourishment gave complete relief to all patients within 48 hours. We have been unable to confirm these results using casydrol. Casydrol and amigen are both enzymic protein hydrolysates: each gramme of casydrol yields 3.6 calories and each gramme of amigen yields 3.7 calories.

Summary

A method of clinical trial well suited to the evaluation of peptic ulcer therapy is presented.

The results of treating peptic ulcer with a commercial preparation of hog's stomach fail to support the assumption that this substance contains an anti-ulcer factor.

Treatment with a commercial preparation of protein hydrolysate was carried out by giving it as a supplement to the ordinary diet or, alternatively, by giving it intensively for a short period as the sole source of nourishment. The patients gained weight, but their dyspepsia did not improve.

We are indebted to Benger's Ltd. and Genatosan Ltd. for presenting a generous supply of casydrol and for providing information on its composition.

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The Ministry of Health states that some management committees have been making a free issue to patients of sweets or tobacco or paying pocket-money in cash in hospitals where this was established practice before the appointed day. Except in mental hospitals and mental deficiency institutions, this should now cease and patients should be expected to pay for tobacco or sweets supplied to them (i.e., bought on their behalf). Patients who have no means of their own (and no pension or benefit from the Ministry of National Insurance) may receive from the National Assistance Board a comforts allowance of 5s. a week, and such cases should, if the patients wish it, be referred to the area officer of the board. The Minister suggests, also, that the committee or board might consider providing from their "free" money sweets—and pocket-money in appropriate cases—for children in their hospitals.