hospitals throughout Wales in the five years and who did not subsequently commit suicide. One important fact which the death of these 92 ex-mental-hospital patients does demonstrate is the need for vigilance by family doctors and psychiatric out-patient clinics in the months immediately after patients' discharge from hospital, for nearly two-thirds of the 92 died within a year of their discharge.

The examination of the 881 suicides suggests that the number of suicides could be reduced now by medical means; for (1) signs of emotional abnormality were commonly present for some time before death, (2) comparatively few had received psychiatric treatment, (3) signs of profound depression sometimes did not receive the urgent attention which would have been given to a medical or surgical emergency, and (4) comparatively few of the large population "at risk" in mental hospitals later commit suicide.

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UROPEPSINOGEN LEVEL IN POST-GASTRECTOMY CASES

BY

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The existence of a pepsin-like proteolytic enzyme in the urine has been known for nearly a century (Brücke, 1861). In 1890 Bendersky named the substance uropepsin, but the final proof of its identity came from experiments by Mirsky *et al.* (1948). That urinary pensinogen excretion quantitatively reflects the gastric pepsin output was shown satisfactorily by Janowitz and Hollander (1950) and Spiro *et al.* (1950), who also showed it as an index of adrenocorticotid activity. Attempts to utilize its assay for diagnostic purposes in cases of gastric and duodenal ulcer were made by Podore *et al.* (1948), Mirsky *et al.* (1948), Janowitz *et al.* (1950), and Hirschowitz (1953).

According to Sircus (1954), "the measurement of the excretion of uropepsinogen has the advantage over test

meals of providing a quantitative estimation of peptic-cell function with the minimum of disturbance of the patient and without the aid of artificial stimuli." It was for this reason that a series of 90 patients on whom gastrectomy had been performed, on account of peptic ulceration, between January, 1954, and October, 1956, were followed up. The uropepsinogen level was assayed in 75 cases on the average 18 months post-operatively, employing Fawcett's (1951) adaptation of the methods of Bucher (1947) and Mirsky *et al.* (1948) using the substrate recommended by Orringer *et al.* (1950).

The results are expressed as the number of units of uropepsinogen per hour (U.P./hr.), where a unit of uropepsin is the same as that of Mirsky *et al.* (1948), who defined it as "that quantity which, during a 10-minute incubation of the standard assay, releases 1 mg. of 'tyrosine-like' substance," and correction for dilution after the 30-minute incubation period being 1 unit/100 ml. of urine $\equiv$ 0.0015 mg. of tyrosine.

Method.—Each patient was instructed how to collect a full 24-hour specimen of urine—namely, voiding the bladder at 8 a.m. and discarding the sample; then collecting all urine until 8 a.m. next day, when the bladder is again voided—this time the sample being kept. These 24-hour specimens are, however, not always accurate in spite of detailed instructions to patients; the uropepsinogen level was estimated in 75 of the 90 patients studied.

Results

The uropepsinogen level varied from 0 to 5.8 U.P./hr., and we were able to divide the 75 cases into the following groups clinically.

Good Surgical Result but General Health Poor (8 cases).—In this group the uropepsinogen level was found to be less than 0.7 U.P./hr. in all cases. Two patients had contracted phthisis and one pernicious anaemia, four complained of an ill-diagnosed ill-health showing a mild microcytic anaemia, and only one showed radiological evidence of stomal ulceration. No patient complained of dyspepsia.

Good Result (48 cases).—Apart from two who were unreliable witnesses, the rest stated that they had never felt better, and the uropepsinogen levels in this group were between 0.8 and 3.0 U.P./hr.

Good with Occasional Symptoms (9 cases).—All these patients admitted to occasional dyspepsia in spite of careful diet, but in none was there any radiological evidence of stomal ulceration. Uropepsinogen level in this group was between 3.1 and 4.1 U.P./hr.

Slight Symptoms (7 cases).—All admitted having flatulence with occasional severe dyspepsia, and in four there was radiological evidence of stomal ulceration. The uropepsinogen level was 4.2–5.1 U.P./hr.

Dyspepsia (3 cases).—These three noticed their symptoms had returned very quickly after surgery; their uropepsinogen level was in excess of 5.2 U.P./hr., but in none was it more than 5.8 U.P./hr.

Summary

From a series of 90 post-gastrectomy cases, uropepsinogen estimation was carried out in 75 cases on an average of 18 months after operation. There was a close correspondence between the clinical results of gastrectomy and the uropepsinogen level. Therefore it is suggested that if a more accurate method of collecting 24-hour specimens of urine were available the uropepsin-

ogen assay would be a good method of estimating the success of gastrectomy.

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HAEMORRHAGIC CHICKEN-POX

TWO FATAL CASES

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Chicken-pox is a benign disease with minimal complications and a very low mortality. Death occasionally supervenes as a result of one of the following complications: sepsis; haemorrhagic manifestations; renal, neurological, or haematological sequelae (Lander, 1955; McLachlan, 1957). Recently several fatal cases of haemorrhagic chicken-pox have been reported after cortisone therapy (Haggerty and Eley, 1956; Bernheim *et al.*, 1956; Nichols, 1957). It is also well known that severe infections are common in association with diseases of lymphoid tissue.

Two fatal cases of haemorrhagic chicken-pox are here reported: one patient had been treated with cortisone, and the other was a known case of Hodgkin's disease with enlargement of the spleen and lymph nodes.

Case 1

The patient, a boy aged 13, was admitted to hospital on February 5, 1958. A diagnosis of tuberculous meningitis was made, and treatment was immediately started with intramuscular and intrathecal streptomycin along with isoniazid and cortisone. He was given 100 mg. of cortisone intramuscularly each day for two days, followed by 50 mg. three times a day by mouth for two days, after which the dose was increased to 50 mg. four times a day.

On February 24 four vesicles appeared on his trunk and within a few hours the rash had covered the whole body and chicken-pox was diagnosed. Several cases of this disease had recently occurred in his school and all had taken a normal course. On February 27 he passed blood-stained urine, and had a haematemesis and an epistaxis.

The rash became extensively haemorrhagic, and he died on February 28. Permission for a necropsy was not obtained.

Case 2

This patient was a woman aged 34. Hodgkin's disease had been diagnosed three years previously and her general condition had been satisfactory after radiotherapy. On January 17, 1959, she felt unwell and discovered "spots" on her trunk. Her family doctor diagnosed chicken-pox, and it was noted that another member of the household had had an attack of herpes zoster at the end of December, 1958. On January 20 the rash was very extensive, and one of us (A. M. N.) was consulted and confirmed the diagnosis of chicken-pox. Two days later the patient was very distressed, with a poor colour and rapid respirations. Signs of consolidation were found over the right lung and she was sent into the isolation hospital. On admission her general condition was poor. The extremities were cold and blue; temperature 101° F. (38.3° C.); respirations 46; pulse 130 a minute. The trunk was covered with a haemorrhagic papular eruption, which was also present on the face. The forearms and legs were relatively free of lesions. Consolidation of the right lung was confirmed. In spite of active treatment she collapsed and died at 10.30 p.m. the same day.

A post-mortem examination was performed 16 hours after death (R. W. P. J.). The body was that of a slim well-nourished young woman. There was an extensive confluent haemorrhagic vesiculo-papular eruption involving the trunk and face. Lesions were scanty on the arms and thighs, and there were none on the hands or below the knees. Similar lesions were found in the oesophagus. The trachea and main bronchi contained mucus. There were many subpleural haemorrhages, and both lungs showed bronchopneumonic consolidation. The spleen was greatly enlarged, weighing 40 oz. (1,135 g.), and was extensively infiltrated by greyish neoplastic tissue. There were many enlarged glands along both sides of the abdominal aorta and in the mediastinum. The liver was pale and soft. Serum and scrapings from the skin vesicles were tested for smallpox; the complement-fixation test and egg cultures were negative for the variola-vaccinia group viruses.

Discussion

Cortisone may have an untoward effect on infectious diseases, including bacterial, fungal, and virus infections, and it has been shown that the drug inhibits antibody production (Haggerty and Eley, 1956). Infections occur with great frequency along with diseases of lymphoid tissue, and agammaglobulinaemia may occur in disease of the reticulo-endothelial system such as Hodgkin's disease (MacCallum, 1959; Kaplan and Smithers, 1959).

Chicken-pox is normally such a mild disease that it is apt to be regarded as of little importance, but severe and even fatal cases have been described in patients undergoing cortisone therapy (Shee and Fehrsen, 1953; Haggerty and Eley, 1956; Bernheim *et al.*, 1956). In these cases the cortisone had presumably inhibited the normal production of antibodies. Haggerty and Eley state that in some cases of chicken-pox cortisone has no apparent ill effect, but in others the skin manifestations are unusually severe, and they had seen two children who died in a state of shock.

When confluent haemorrhagic vesicular eruptions are encountered, smallpox must be considered as a possible diagnosis, but in the two cases described above the diagnosis of haemorrhagic chicken-pox was confidently made on clinical grounds and confirmed by subsequent events. It is suggested that in these two cases the