

radius or ulna, or both. Head injuries comprised one case of concussion, seven lacerations of the face or scalp, and three contusions. Six patients were admitted as acute cases: two with fractures of the tibia and fibula, one with a compound fracture of the radius and ulna, one with a possible infective arthritis secondary to an infected abrasion, one with a head injury, and one with a fractured femur. In this same department this winter during the nine-day spell of snow there were over 50 attendances and eight admissions due to sledging accidents.

These injuries are as nothing when compared with the 154 admissions over a two-year period at the Radcliffe Infirmary, Oxford, which were due to horse-riding accidents.<sup>1</sup>

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<sup>1</sup> Barber, H M, *British Medical Journal*, 1973, 3, 532.

### Bleeding gastric erosion after oral zinc sulphate

SIR,—We were very interested to read Dr Ray Moore's report (25 March, p 754) of a case of bleeding gastric erosion following oral zinc sulphate therapy. It is reasonable to suggest that this complication was a direct irritant effect of the zinc salt given during the previous week. Zinc chloride is a very powerful caustic and is likely to be formed by the action of gastric hydrochloric acid on zinc sulphate whether given as capsules or effervescent tablets. However, we believe that the time of administering this drug in relation to meals could have been more important than the form in which it was dispensed. The occurrence of epigastric discomfort after each capsule in Dr Moore's patient would suggest that zinc was taken on an empty stomach.

Patients should always be instructed to take zinc only after meals. In our department, where this is the practice, there have been no side effects in patients receiving zinc sulphate either in capsule form (Zincomed) or in a syrup. Patients with acrodermatitis enteropathica have been maintained trouble free on this therapy for the last four years.

Recently there has been evidence to show that food, particularly bread, binds with inorganic zinc.<sup>1</sup> This could be significant in minimising the irritant effect of zinc salts during their transit in the highly acidic medium of the stomach.

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<sup>1</sup> Ismail-Beigi, F, *et al*, *American Journal of Clinical Nutrition*, 1977, 30, 1721.

### Factors affecting length of hospital stay

SIR,—With reference to Mr R Hole's letter (25 March, p 789), in which he questions the value of studying the duration of hospital stay, it is well recognised that this varies according to the idiosyncrasies of the surgeon<sup>1</sup> as well as the day of week of operation and age and sex of the patient. However, it may not be a question of just "a day or two longer."

In a study of 1426 cataract operations in seven area health authorities in Wales in 1975, using the Hospital Activity Analysis, I found that the mean duration of stay for men ranged

from 8.9 days in South Glamorgan to 17.0 days in West Glamorgan, and that for women ranged from 7.8 days in Gwynedd to 25.4 days in West Glamorgan. The recommended length of stay is of the order of six days.<sup>2-4</sup> There is a low incidence of complications after cataract surgery,<sup>3,5</sup> and it is difficult to account for these differences: it seems unlikely that patients benefit from prolonged hospitalisation in this instance. Indeed, one ophthalmologist<sup>3</sup> has suggested that old people are suffering "merely by virtue of the fact that they were in hospital."

The cost of cataract surgery in Wales, based on the cost per inpatient week,<sup>6</sup> ranged from £155 per patient in Gwynedd to £504 per patient in West Glamorgan, and the total cost for Wales in 1975 was nearly £400 000. This may not be a very large amount in relation to the total NHS expenditure, but there must be other fields in which there are elective surgical procedures for which there are similar discrepancies in the duration of stay in hospital. Mr Hole is alarmed at the cost of collecting the information on which such studies are based, but data are already being collected for the Hospital Activity Analysis on HMP 1 forms. Perhaps the administrative costs of utilising this available information might be outweighed by the reduction in cost per patient for an elective procedure; there must be some hospital administrators who earn less than the £214 per inpatient per week cost in 1975 in the University Hospital of Wales.

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<sup>1</sup> Dugmore, W N, and Raichand, M, *British Journal of Ophthalmology*, 1972, 56, 671.

<sup>2</sup> Mills, P V, *Transactions of the Ophthalmological Society of the United Kingdom*, 1972, 92, 637.

<sup>3</sup> Jackson, C R S, *Transactions of the Ophthalmological Society of the United Kingdom*, 1967, 87, 779.

<sup>4</sup> Galin, M A, *et al*, *Transactions of the Ophthalmological Society of the United Kingdom*, 1975, 95, 42.

<sup>5</sup> Strachan, I M, and Bowell, R E, *Transactions of the Ophthalmological Society of the United Kingdom*, 1972, 92, 629.

<sup>6</sup> Welsh Office, *Health and Personal Social Services Statistics for Wales*, No 3. Cardiff, HMSO, 1976.

### Recurrent aphthous ulceration and jejunal biopsy

SIR,—Surprised at the report of the high incidence of coeliac disease in patients with aphthous stomatitis,<sup>1</sup> we obtained biopsies of the jejunum with a Crosby capsule in 26 patients who had had recurrent aphthous ulceration for 1-40 years, most for more than eight years. Two had major ulceration with multiple scars. There were no other complaints of alimentary origin. Half of the patients were referred from the Edinburgh Dental Hospital.

Each biopsy specimen was examined by conventional histology, intraepithelial lymphocytes were counted,<sup>2</sup> and concentrations of disaccharidases were measured. Of the 26 biopsies, in only one was there villous atrophy with an increase in intraepithelial lymphocytes. There was also no maltase, and lactase concentrations were reduced. One patient with rosacea had no sucrose and low lactase concentrations.<sup>3</sup>

The patient with villous atrophy was a 14-year-old girl. She had had mouth ulcers for nine years. Serum and red cell folate, serum B<sub>12</sub>, and iron concentrations and iron-binding capacity were all normal. After five months on a gluten-free diet there was no change in her mouth ulcers.

Our results do not confirm the importance of performing a jejunal biopsy in patients with aphthous stomatitis as previously suggested,

and there seems little justification in routinely subjecting aphthous ulcer patients to this procedure.

We are grateful to Mr I T MacPhee for permission to study patients under his care.

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<sup>1</sup> Ferguson, R, *et al*, *British Medical Journal*, 1976, 1, 11.

<sup>2</sup> Ferguson, A, and Murray, D, *Gut*, 12, 988.

<sup>3</sup> Paton, E, Murray, E, Watson, W C, *British Medical Journal*, 1966, 1, 459.

### Vincristine-induced neuropathy in lymphomas

SIR,—The article by Drs Sylvia M Watkins and J P Griffin (11 March, p 610) on vincristine-induced neuropathy compares the incidence found in 23 patients with lymphoma and 37 with other malignant disease. This second group, however, is very heavily weighted by the inclusion of 23 female patients with breast cancer, while there is the expected male preponderance among the lymphomas, 18 male patients versus 5 female patients.

It would be interesting to know the incidence of vincristine neuropathy in the two sexes, since this factor on its own might account for the difference between the lymphomas and the other group.

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### Haemodialysis during cyclophosphamide treatment

SIR,—We are interested in the report by Drs R A V Milsted and M Jarman (1 April, p 820) but cannot agree with their conclusions. From the six pairs of data for plasma concentration and dialysate concentration of cyclophosphamide it is possible to calculate the dialysis clearance of unmetabolised drug. This is 78 ml/min.

The total amount of drug cleared during the six-hour dialysis can also be calculated by integration of the area under the dialysate concentration/time curve for cyclophosphamide and multiplying by the dialysate flow rate. This is calculated as 429 mg in the six-hour period or 71.5% of the 600 mg dose (calculations available from MRB). Thus, although the concentration of unmetabolised cyclophosphamide in dialysate is an order of magnitude lower than the concentration in plasma, the total clearance is very high. This apparent anomaly is dependent on the high flow rate of dialysate used in a Gambro 1 m<sup>2</sup> dialyser (21-36 l/h).

Milstead and Jarman found a plasma half life of cyclophosphamide of 2 h 35 min for their patients on dialysis.<sup>1</sup> Bagley *et al*<sup>2</sup> report a mean plasma half life of cyclophosphamide of 6.45 ± 1.1 (range 3.9-8.2) hours in twelve of their patients on no other treatment. These patients had normal renal function. Only two of their 43 patients had a half life of less than 2 h 35 min and both of these had been receiving diphenhydantoin prior to the study.

In our opinion, the short half life of cyclophosphamide of this one patient on haemo-