was normal. On admission to our unit the white cell count was $0{\cdot}4\times10^9$/l with no neutrophils. She remained agranulocytic for six days after the aminoglutethimide was stopped. Six days after admission the platelet count fell from $230\times10^9$/l to $30\times10^9$/l and remained below $100\times10^9$/l for a further 11 days. The haemoglobin fell to 79 g/l from 120 g/l without evidence of haemolysis or haemorrhage. She was treated with broad spectrum antibiotics and steroids and was discharged after 35 days with haemoglobin 89 g/l (8% reticulocytes), white cells $12\times10^9$/l (50% neutrophils), and platelets $180\times10^9$/l. For seven years she had been treated without complication with bethanidine, metoprolol, and a thiazide diuretic for hypertension. Her case has been reported to the Committee on Safety of Medicines.

The rationale for the use of aminoglutethimide in postmenopausal breast cancer is that it reduces adrenal sex hormone production by inhibiting conversion of cholesterol to pregnenolone. Hydrocortisone is given to prevent an Addisonian crisis and also a compensatory rise in adrenocorticotrophic hormone, which would overcome the enzyme inhibition.[1] However, at a dose of 40 mg/day hydrocortisone would be expected to inhibit adrenocorticotrophic hormone secretion and reduce adrenal steroid secretion without the need for aminoglutethimide, and indeed similar changes in hormone secretion have been reported with hydrocortisone alone.[2] It would appear to be mandatory that in future trials aminoglutethimide with hydrocortisone is compared not only with placebo but also with hydrocortisone alone particularly as the incidence of side effects with aminoglutethimide is high.[1]

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1 Santen RJ, Lipton A, Harvey H, Wells SA. Use of aminoglutethimide and hydrocortisone as a "Medical Adrenalectomy" for treatment of breast carcinoma. *Prog Clin Cancer* 1982;**8**:245-65.
2 Harris AL, Dowsett M, Smith S, Jeffcoate S. Hydrocortisone alone vs hydrocortisone plus aminoglutethimide: a comparison of the endocrine effects in post menopausal breast cancer. *Eur J Clin Oncol* 1984;**20**:463-9.

## Relation between recurrence of cancer and blood transfusion

SIR,—We read with interest the letter of Mr David Francis and Mr Rodney Judson (24 August, p 544) commenting on the paper of Professor Neil Blumberg and others.[1] We have examined the survival of 67 patients undergoing nephrectomy for adenocarcinoma of kidney. The patients were treated from 1976 to 1984 in the Western Infirmary, Glasgow. Thirty nine patients received blood or packed red cells (mean 3 units) during their hospital stay at the time of surgery. We could detect no statistical difference in the age or sex composition of the two groups. Similarly, the proportions presenting with haematuria did not differ between the groups. A haemoglobin level of less than 100 g/l did appear to predispose to transfusion but values greater than 100 g/l did not influence transfusion practice.

Retrospective staging was assessed using both the Robson[2] and the Union Internationale Contre le Cancer[3] classifications. There was no statistically significant difference in terms of either classification. There was a survival advantage in the non-transfused group, of whom 58% were alive at the end of the study compared with 48% of those transfused ($\chi^2 = 3{\cdot}06$, 1 df; $p = 0{\cdot}08$). We are aware that analysis of a small number of patients may obscure some real difference between our transfused and not transfused groups. Despite apparent comparability of stage and other variables, our findings might reflect, for example, the degree of operative difficulty. The survival difference may, however, have an immunological basis and we believe this to be the first report of this effect in patients with renal carcinoma. The observation requires further elaboration and we support the suggestion by Messrs Francis and Judson that prospective studies should be established.

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1 Blumberg N, Agarwal MM, Chuang C. Relation between recurrence of cancer of the colon and blood transfusion. *Br Med J* 1985;**290**:1037-9.
2 Robson CJ, Churchill BM, Anderson W. The results of radical nephrectomy for renal cell carcinoma. *J Urol* 1968;**101**:297-301.
3 Harmer MH. *TMN classification of malignant tumours*. Geneva: Union Internationale Contre le Cancer, 1978.

## Do locum duties help or hinder acquisition of clinical knowledge by final year medical students?

SIR,—Mr Nicholas Banatvala's letter (14 September, p 740) highlights an important deficiency in the present clinical teaching programme. I undertook an overseas student elective in San Francisco at the University of California some years ago. Together with their own senior medical students, I was allotted a small number of patients to care for and acted as junior intern under the supervision of the resident medical team. Those three months were probably the most useful in the whole of the clinical curriculum, providing exposure to those situations that the newly qualified houseman faces the day he qualifies. With supervision, this is the best form of practical training that could be given to the final year student. Coming back to London, I found the standard studentship dull and very theoretical.

Teaching clinical students has been my regular duty over the years. Even today I find most students competent in theoretical knowledge but still badly lacking practical experience. What we should be planning is a regular period of "junior housemanship" for final year students. Student locums are not only spasmodic but also enjoyed only by a fortunate few. Without doubt the neomedic would be a better doctor having been given the practical exposure he so sorely needs today.

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## Do sex hormones affect colorectal cancer?

SIR,—Dr Michael Davidson and colleagues (22 June, p 1868) point out several reasons for believing that right sided cancer of the colon may be associated with sex hormones and report a strong association between subsite and stilboesterol treatment in 26 men with prostatic cancer who subsequently developed cancer of the colon. In a further effort to examine the relation we have tabulated the site distribution of 162 cases of colon cancer occurring in 1978-83 among men and women aged 45 to 64 at the Group Health Cooperative of Puget Sound, located in Seattle, Washington, and collated this information with computerised data on drug purchases by Cooperative members. Use of conjugated oestrogen, ethinyloestradiol, and diethylstilboesterol within five years of diagnosis was examined, including only those prescriptions which were refilled at least once. No man who subsequently developed cancer of the colon received any oestrogens. The site distribution determined from ICD discharge codes of 81 women who either had never used conjugated oestrogens or were repeated users of them and who had a determinable subsite is shown in the table.

Patients with cancers of the right side of the colon formed very similar percentages of the user and non-user populations. There were no repeat users of either ethinyloestradiol or diethylstilboesterol among the patients with cancer of the colon. The odds ratio comparing right sided (ICD 153·0 + 153·1) with left sided (ICD 153·3 + 153·4) colon cancers in repeat users versus never users of conjugated oestrogens was 0·7 with a 90% exact confidence interval of 0·3 to 2·8.

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## Smoking, sugar, and inflammatory bowel disease

SIR,—Following the letter by Dr E Stermer and others (17 August, p 487) on the negative correlation between smoking and ulcerative colitis, we would like to report the results of a study we have carried out on outpatients.

We evaluated not only smoking habits but also the intake of refined carbohydrates and vegetable fibre in 124 patients suffering from ulcerative colitis, 109 patients with Crohn's disease, and 250 controls matched by sex and age (within the same five year span) devoid of gastrointestinal and neoplastic disease.[1,2]

Ulcerative colitis was more common among ex-smokers (patients who had stopped smoking at least one year before the onset of the disease), relative risk ($RR = 2{\cdot}6$; $p<0{\cdot}05$). A seemingly protective effect of smoking in this disease was brought to light also by analysing the incidence of ulcerative colitis among people who smoked more that 15 cigarettes/day ($RR = 0{\cdot}3$; $p<0{\cdot}003$).

Conversely, a positive correlation was found between smoking and Crohn's disease: the risk was 3·7 times greater among smokers than among non-smokers ($p<0{\cdot}05$). Both these diseases were positively correlated with refined carbohydrate intake: a high intake of sugar increased the risk of contracting ulcerative colitis or Crohn's disease by a factor of 2·37 and 2·38 as compared with normal consump-

*Subsite distribution of cancer of colon in women at Group Health Cooperative of Puget Sound 1978-83*

| | Site (ICD, 8th revision) | | | | |
|---|---|---|---|---|---|
| Conjugated oestrogens | Cecum (153·0) | Ascending (153·1) | Transverse (153·2) | Descending (153·3) | Sigmoid (153·4) |
| Never users | 13 | 4 | 6 | 8 | 29 |
| | 28·3% | | | | |
| Repeat users | 5 | 0 | 4 | 0 | 12 |
| | 23·8% | | | | |