severe abdominal pain. 3 patients treated with glucose subsequently underwent hysterosalpingography showing normal configuration and patency of the affected tubes.

We feel the results of this study are promising and that treatment with glucose could be a useful alternative to conventional methods.

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STEROID-INDUCED PSYCHOSIS

SIR,—Dr d'Orbán (Sept 16, p 694) rightly draws attention to the unsatisfactory state of the law with respect to steroid-induced psychosis as a defence for criminal activity, but is not quite accurate in stating that there is only one other publication on this matter. A 45-year-old man has been reported[1] who, following treatment with prednisolone 30–60 mg daily for severe ulcerative colitis, was convicted of shop lifting despite clear evidence of a steroid-induced psychosis.

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SMOKING AND CEREBRAL ISCHAEMIA

SIR,—Dr Donnan and colleagues (Sept 16, p 643) show that smokers have a much higher risk of stroke (relative risk 5·7) than have non-smokers. After cessation of smoking the relative risk declined but a significant risk was still evident ten years later.

MEAN LEVELS OF PLASMA FIBRINOGEN, PLASMA VISCOSITY, AND WHITE CELL COUNT (WCC) IN MEN AGED 45–59 YEARS

—	No	Fibrinogen (g/l)	Viscosity (cP)*	WCC ($\times 10^9$/l)
Never smoked	725	3·42	1·67	5·95
Ex-smokers				
Stopped 10 years ago	849	3·48	1·68	6·15
Stopped 5–9 years ago	321	3·56	1·68	6·38
Stopped 1–4 years ago	257	3·68	1·69	6·64
Stopped < 1 year ago	106	3·73	1·70	6·96
Smokers	1936	3·91	1·71	8·10
SD†		0·8	0·10	2·0

*1P = 0·1 Pa.s. †Average of standard deviations for the 6 groups.

In their interpretation of this last finding Donnan et al comment: "the known effects of smoking on . . . fibrinogen levels and blood viscosity are reversible within a short period". They therefore attribute the excess risk of cerebral ischaemia to atherogenesis rather than to haemostatic processes. Their assumption that effects of smoking on haemostasis are shortlived is, however, untrue. We have evidence from two large cohorts of men in Caerphilly and in Speedwell[1] that effects of smoking on the haemostatic system are far from shortlived and can be detected at least ten years after stopping cigarettes (table). In fact, in relation to heart disease, our conclusion is that the effect of smoking on heart disease may be mediated to a large extent through the haemostatic system. Donnan and colleagues' evidence does not exclude this possibility in cerebrovascular disease.

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RAISED PLASMA ALUMINIUM IN AN INFANT ON ANTACID

SIR,—Correspondence in *The Lancet* (Dr Bishop and colleagues, March 4, p 490, and Ms Lawson and colleagues, March 18, p 614) has drawn attention to aluminium (Al) toxicity in infants. Al toxicity has been looked for in users of Al-containing antacids.[1] Although such medications are used infrequently in young infants, 'Gaviscon' (Reckitt and Colman) has been advocated for the management of gastro-oesophageal reflux[2] and we report the finding of strikingly raised plasma Al concentration in a child treated in this way.

A male infant weighing 1·5 kg was delivered by emergency caesarean section at 30 weeks' gestation following antepartum haemorrhage. He had 7 days' ventilation for hyaline membrane disease, during which time enteral feeding was established with expressed breast milk, later changed to 'Premium' (Cow and Gate). At age 17 days he still needed an inspiratory oxygen concentration of 30% and he had recurrent apnoeas. Investigations, including septic screen and electroencephalography, were normal; however, chest radiographic changes were consistent with recurrent aspiration, suggesting that the apnoeas might be related to gastro-oesophageal reflux.[3] Apnoeas became less frequent when the baby was nursed in an anti-reflux posture and feeds were thickened with 'Carobel' (Cow and Gate). When constipation and abdominal distension occurred, 'Infant Gaviscon' was substituted for carobel, one sachet being added to 12 hours' feed requirement. Each sachet contains about 40 mg elemental Al as hydroxide, giving our patient about 53 mg Al/kg per day. Plasma analysis of venous blood after a week of treatment showed an Al concentration of 43 μg/l (upper reference range 14 μg/l); plasma creatinine was within the normal range 1 week after stopping gaviscon, plasma Al was virtually unchanged (42 μg/l), falling to 30 μg/l and then 11 μg/l over the next 2 weeks.

We speculate that the high plasma Al in our patient was related to absorption of Al from infant gaviscon, perhaps facilitated by the higher content of citric acid in formula milk than in breast milk.[4] Despite the fact that infant gaviscon is not recommended for use in young infants because of its high sodium content we believe that it is commonly used to treat symptoms suggestive of gastro-oesophageal reflux. In view of the possible adverse results of excess Al absorption we suggest that such treatment should be avoided in premature babies or during early infancy.

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SPONTANEOUS LYMPHOCYTE PROLIFERATION IN SYMPTOM-FREE HTLV-I POSITIVE JAMAICANS

SIR,—Jacobson et al[1] report increased spontaneous proliferation of lymphocytes in patients with HTLV-I-associated myelopathy/tropical spastic paraperesis (HAM/TSP) who were infected with human T-cell leukaemia virus (HTLV-I), but did not address the issue of whether this was associated with disease (HAM/TSP) or exposure (HTLV-I). We have looked at spontaneous lymphocyte proliferation in HTLV-I-infected but symptom-free individuals to see if other factors (eg, demographic and socioeconomic) influence spontaneous proliferation.

Whole blood was obtained from Jamaicans taking part in epidemiological studies of HTLV-I sponsored by the US National Cancer Institute in collaboration with the University of the West Indies and the Jamaican Ministry of Health—these studies had been approved by review committees at both institutions and

SPONTANEOUS LYMPHOCYTE PROLIFERATION RATES IN FOUR GROUPS

Group	Median age (yr)	Sex (M/F)	Proliferation rate (counts/min; mean [SEM])*
1 (Jamaican, black, seronegative)	40	4/11	18 483 (4371)
2 (Jamaican, black, seropositive)	41	4/11	62 852 (12 569)
3 (Jamaican, black, seropositive, ATL)	40	3/9	12 629 (2860)
4 (US, white, blood donors, seronegative)	40	3/10	2345 (436)

*1 *vs* 2 ($p < 0.003$); 2 *vs* 3 ($p < 0.0004$); 1 *vs* 4 ($p < 0.0002$).

participants gave informed consent—and from blood donors at the National Institutes of Health blood bank whose blood was designated for research purposes. The four groups (table) were:

Group 1.—Healthy Jamaican HTLV-I seronegative, n = 15. Randomly chosen from a nationwide survey of HTLV-I antibody in 1985–86. Enrolled when seeking employment licences for food-handling. Questionnaire and physical examination were administered by trained personnel.

Group 2.—Healthy Jamaican HTLV-I seropositive, n = 15. From the same survey but testing positive for HTLV-I.

Group 3.—Patients with adult T-cell leukaemia/lymphoma (ATL), n = 12. Enrolled in case-control study of haematological malignancies.[2] All had diffuse lymphoma, T-lymphocyte phenotype of malignant cells, and antibodies to HTLV-I. Skin infiltration and hypercalcaemia were common findings.

Group 4.—Healthy USA control, n = 13. Healthy blood donors all seronegative for HTLV-I (and HIV-1).

Sera were tested for antibody to HTLV-I with a research ELISA based on disrupted whole virus particles (Dupont). Positive samples were confirmed by western blot (Biotech). Minimum criteria for a positive western blot were bands specific to HTLV-I *gag* proteins p19 and p24.[3] An *env* ELISA (Cambridge Bioscience) was also done—ie, antibodies to two HTLV-I gene groups were required for a positive sample.

Cryopreserved lymphocytes were plated in triplicate at a concentration of 3×10^5 per well in 96-well plates. We used RPMI medium supplemented in 2% human AB serum. After 4, 5, and 6 days, wells were pulsed with 1 μCi of ^{3}H-thymidine for 4 h, harvested (Skatron, Sterling, Virginia), and counted. Spontaneous lymphoproliferation counts were log-transformed and analysed by Student's t-test. To evaluate risk factors odds ratios (OR) and 95% confidence intervals (CI) were calculated for demographic and lifestyle factors. Logistic regression was done to determine the separate effects of HTLV-I serostatus and income. For these purposes, variables were dichotomised at their median.

Spontaneous lymphocyte proliferation rates at day 6 are summarised in the table. The important significant differences were between seropositive and seronegative healthy Jamaicans, seropositive healthy Jamaicans and seropositive patients with ATL, and seronegative Jamaicans and US controls. There were no correlations between proliferation rate and white blood cell or lymphocyte counts.

Among the 30 healthy Jamaicans, the only demographic feature (age, sex, socioeconomic status) associated with high lymphoproliferation was low income. However, logistic regression analysis revealed that HTLV-I seropositivity was a stronger risk factor for high lymphoproliferation (OR = 17·2, 95% CI 1·8–164·7) than was low income (OR = 8·5, 95% CI 0·9–81·6).

Besides ATL and HAM/TSP, HTLV-I infection has been associated with immunodeficiency and in-vitro immunological effects,[4] including pertubations in T-cell subsets.[1,5,6]

Our data suggest that increased spontaneous lymphoproliferation is associated with HTLV-I exposure per se. Since the rate of proliferation was indistinguishable in HTLV-I positives and HAM/TSP patients,[7] a mechanism that may yield insight into the pathogenesis of HAM/TSP is provided by Sonoda and colleagues.[6] They added HTLV-I antigens to lymphocytes and measured the proliferation induced. HAM/TSP patients had a high proliferative response while ATL patients were low responders. Family members who shared certain HLA-haplotypes with HAM/TSP or ATL patients showed high and low lymphocyte proliferation responses, respectively. Perhaps virus infection in our study resulted in viral antigen expression in vitro which stimulated cells to spontaneous proliferation. The low spontaneous lymphocyte proliferation in ATL probably reflects an overabundance of HTLV-I-positive tumour cells that have lost their capacity to proliferate. Individuals co-infected with HTLV-I and HIV-1 may progress to AIDS at an accelerated rate.[8-10] HTLV-I lymphocyte proliferation may explain this.

HTLV-I-negative black Jamaicans had significantly higher lymphoproliferation than US white controls. The reason for this finding is unclear. Genetic factors may account for this difference.[11] However, it is also possible that spontaneous proliferation is influenced by exposure to antigens and pathogens; and multiple infections are more common in Jamaica than in the United States.

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EFFECT OF APROTININ ON INTRAOPERATIVE BLEEDING AND FIBRINOLYSIS IN LIVER TRANSPLANTATION

SIR,—Aprotinin has been reported to reduce blood loss in open heart surgery[1] and an increase in tissue plasminogen activator (tPA) activity and a reduction of PA-inhibitor (PAI) have been said to be responsible for fibrinolysis and sometimes uncontrollable bleeding after reperfusion of the graft.[2] Between September, 1988, and, April, 1989, 20 orthotopic liver transplants were done in our clinic, 10 without (group I) and 10 with (group II) intraoperative prophylactic administration of 2·0 million IU aprotinin ('Trasylol'). Blood loss after reperfusion of the graft was significantly higher in patients not given aprotinin; in the longer duration of the procedure, larger volumes of abdominal fluid drained, and the necessity for 2 re-laparotomies in group I (table) might have been a reflection of the tendency towards sometimes severe fibrinolysis and bleeding in this group.

We now give aprotinin routinely and in 40 liver transplants done so far, no coagulation problems have been observed. Usually the