

discussed the support for this from structural imaging methods such as X-ray computerised tomography (CT). Unfortunately, CT provides little or no information on regional brain function.

Several functioning imaging studies show that regional cerebral blood flow (rCBF), an index of cerebral metabolism, is reduced in patients who have taken excessive quantities of alcohol over long periods (e.g. Berglund, 1981). Positron emission tomography (PET) and single photon emission tomography (SPET) have been used to investigate regional brain metabolism in Korsakoff patients. In the study by Hata *et al* (1987), quoted by Lishman, rCBF in a small group of possible Korsakoff patients returned to normal following abstinence and thiamine. However, other evidence from cohorts of patients carefully defined as having chronic Korsakoff syndrome suggests that there is a permanent impairment of function in the cortex, particularly in the frontal regions, even after prolonged abstinence and thiamine treatment. Non-tomographic cortical measures of rCBF (Hunter *et al* 1989a) and SPET using the flow tracer  $^{99m}\text{Tc}$ -hexamethyl propyleneamine oxime ( $^{99m}\text{Tc}$  HMPAO; Hunter *et al*, 1989b) indicate significantly impaired perfusion in frontal cortex in abstinent Korsakoff subjects. Furthermore, significant correlations were detected between impaired cognitive performance, particularly memory function, and rCBF measured using SPET in frontal cortex of Korsakoff patients (Hunter *et al*, 1989b). These findings in Korsakoff patients are in marked contrast to measures of rCBF using SPET in pre-senile Alzheimer patients, where perfusion deficits were marked in posterior temporal and parietal cortical regions, areas that appeared relatively normal in Korsakoff patients (Hunter *et al*, 1989b). These results are consistent with those from PET, where absolute rates of regional cerebral glucose metabolism were reduced in cortical and subcortical regions in Korsakoff patients (Kessler *et al*, 1984).

There are difficulties in the interpretation of functional scans, however. For instance, the finding of frontal reductions in rCBF or glucose metabolism could mean that a normal tissue mass has reduced neuronal activity, or that a reduced tissue mass has normal levels of activity or some mixture of the two. The CT and neuropathological studies quoted by Lishman showing structural loss of grey and white matter in frontal lobes, suggest that reduced rCBF in this region is likely, at least in part, to reflect some contribution from atrophic change. Further studies are required to assess the size of this contribution. Nevertheless, functional imaging techniques, and in particular SPET and PET, provide important evidence of frontal metabolic impairment in Korsakoff

syndrome. Such techniques may demonstrate a pathophysiological basis for the well recognised clinical features of Korsakoff syndrome, such as behavioural change, apathy and loss of initiative, which in the past were presumed from lesion studies to be frontal in origin.

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#### Skeleton services

SIR: We undertook a Christmas census at the Walsgrave Psychiatric Unit of all in-patients present at midnight on Christmas Eve, 1989. Twelve of the patients were over the age of 65 years with functional mental illness, six fulfilling DSM-III criteria for major depressive disorder, one for alcohol dependence, one for personality disorder, four for psychoses not otherwise classified and one inappropriately admitted because of medical problems. The severity of illness was the reason for staying in hospital over Christmas in nine of the patients, mainly because of poor eating and drinking or suicidal intentions. Three of the patients were in hospital because of social reasons, one because the main carer was too ill to look after the patient, and two because Part-III homes were unable to cope with them because of decreased staffing levels over the Christmas period. In addition to these three patients, two of the nine patients staying because of medical reasons were unmanageable by their families simply because they exhibited a degree of agitation; they would probably have been able to go for a short period of leave had there been suitable community services in operation.

We are rather concerned that five of the patients kept in hospital over the Christmas period were there mainly because of the low levels of staffing of social services and community psychiatric services at Christmas. Although ideally everybody would like time off work to be with their families at this time of year, can the skeleton services provided currently be ethically justified in the light of the figures from our census?

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#### 'Vital exhaustion' and myocardial infarction

SIR: Appels (*Journal*, April 1990, 156, 465–471) draws attention to the mental precursors of myocardial infarction. We would like to add the findings of our recent study of 50 Indian patients with acute myocardial infarction and 50 age- and sex-matched healthy controls. The frequency and intensity of type-A behaviour, life events occurring during the period of one year preceding myocardial infarction and the levels of anxiety and depression following myocardial infarction were studied.

According to Jenkins activity survey (form C; Jenkins *et al*, 1979), type-A behaviour was detected in 72% of patients as compared with 18% of the control group. With regard to different components of type-A behaviour, type A and factor S (measuring speed and impatience) were significantly higher in the study group, while factors J (measuring job involvement) and H (measuring hard driving and competitiveness) did not differ significantly between the two groups. The patients also had significantly greater mean frequency of stress scores on the Presumptive Stressful Life Events Scale (Singh *et al*, 1983) which measures both total life events and subgroups of this – the desirable, undesirable, personal, impersonal and ambiguous life events.

The stressful life events which discriminated the patients from controls were (in decreasing significance): marital conflicts, financial loss, change in working condition, major personal illness, trouble at work, death of a family member, and change/expansion of business. The mean scores of anxiety (as assessed by the Hamilton Rating Scale) and depression (as measured on Beck's Depression Inventory) showed statistically significant falls over the periods of two weeks, one month and three months after infarction, but became insignificant subsequently.

In conclusion, type-A behaviour and stressful life events are significantly associated with the risk of myocardial infarction.

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SIR: The 'vital exhaustion' preceding myocardial infarction in men discussed by Appels (*Journal*, April 1990, 156, 465–471) is supported by a correlation of type B with somatic risk factors of coronary heart disease in adolescent boys (Keltikangas-Jarvinen & Jokinen, 1989). It is also supported by speech hesitation pauses of one second or more occurring more than twice a minute, a component of type-B style but not of global type-A, predicting a six-fold increase in coronary incidence in two groups of normal coronary-prone men followed prospectively for ten years (Case *et al*, 1988). The correlation of the 'traditional' type-A components like impatience and sense of hurry with somatic risk factors of coronary heart disease in adolescent girls (Keltikangas-Jarvinen & Jokinen, 1989) may have been due to their higher metabolic rate (Baxter *et al*, 1988) and dopamine lateralised to the right hemisphere (Friedman; *Journal*, February 1990, 156, 285). The role of gender-related hemispheric differences is supported by increased dopaminergic activity manifested by mania in a 76-year-old woman with improved Parkinsonism (Menza & Chastka, 1989) compared with reduction of obsessive slowness in a 17-year-old boy in response to fluoxetine, with a return to normality of decreased tracer deposition in the right basal ganglia and adjacent temporal lobe (Hamlin *et al*, 1989).

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