at 35% (Voris *et al*, 1983). It is not clear why the rate was much lower in the present study. Side-effects can be an important factor in non-compliance, but only six patients had no such complaints. Other factors contributing to compliance may include psychiatric diagnosis, the number and frequency of drugs prescribed, and relief from symptoms causing premature discontinuation.

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Insight

SIR: David (*Journal*, June 1990, **156**, 798–808) discusses three aspects of insight that are commonly recognised in the psychiatric mental state: treatment compliance, awareness of illness, and correct relabelling of psychotic experiences. David appropriately considers each of these to be dimensions, rather than 'all or none'. However, even this approach is an oversimplification. None of these three sorts of insight have been satisfactorily reduced to a quantitative scale, since each involves a number of different qualitative judgements. Furthermore, by carefully examining these judgements, we find that these three different aspects of insight are, in fact, crucially linked.

Consider what is necessary to 'relabel a psychotic experience correctly'. When a patient 'hears voices', he/she is not *imagining* that he hears voices: he is having the perceptual experience of hearing the sound of a voice – he is hearing a 'real' sound. To relabel the experience correctly, he has to recognise that for the experience to be 'normal', there must, in addition, be an identifiable source to the sound, and he has to establish that there is no such source. However, even this is not enough: he must also recognise the correct explanation for his abnormal experience rather than invoking other explanations (of varying degrees of plausibility) to reconcile this experience with his knowledge and beliefs about reality.

To be compliant with treatment, or to admit to an awareness of illness, involves an equally complex chain of decisions concerning, among other things, the patient's attitude to the current practice of psychiatry. However, *in common* to all three aspects of insight is this issue whether the patient recognises that he is, in some way, functioning abnormally.

The interesting thing is that many patients *do* realise that their experiences (or that they themselves) are abnormal in some way – but they may *not* go so far as to 'correctly relabel' their psychotic experience, and so would not score on Dr David's schedule. We know that patients are often aware of this abnormality because it is common to see a patient invoking elaborate explanations for his psychotic phenomena. However, the explanations that are invoked may, themselves, be at odds with reality. Thus 'double awareness' or double orientation (i.e. simultaneously entertaining two beliefs that are irreconcilable, given the currently accepted limits of science) is actually very common, either because the patient accepts his psychotic experience as real, yet not in keeping with reality, or because the patient accepts a bizarre explanation for his experience.

This awareness by the patient of the 'oddness' of his experience is very important, because it probably results both in the patient's awareness that he is ill and (crucially) in the motivation for treatment compliance – whether or not the patient takes the step of 'relabelling' his psychotic experience. I would suggest, therefore, that measuring the patient's degree of insight is of great value in assessment and in therapy, both physical and psychological. However, there are many more detailed questions to be asked than have been covered in Dr David's schedule.

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Frontal metabolic deficits in Korsakoff syndrome

SIR: Lishman's review (*Journal*, May 1990, **156**, 635–644) emphasises importantly the spectrum of brain damage found in alcoholics and, in particular, the accumulating evidence that Korsakoff patients not only have subcortical lesions, but in most cases significant cortical damage also. In the review, Lishman

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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* 1989*a*) and SPET using the flow tracer ^{99m}Tc–hexamethyl propyleneamine oxime (^{99m}Tc HMPAO; Hunter *et al*, 1989*b*) 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*, 1989*b*). 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*, 1989*b*). 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 critera 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.

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