(page 129) also shows that there was one patient aged 60–65 who was trial eligible, but not a trial entrant. Table I, (pages 122–123) shows that randomisation was applied to patients only between ages 15 and 59. Why? Does this mean the researchers were reluctant to diagnose schizophrenia in a patient aged 60 or more?

PETER S. GRAHAME

Severalls Hospital,
Colchester CO4 5HG

Drs Johnstone, Macmillian and Crow Reply

Sir: We limited our age range to 15–70 years largely for practical reasons. Our collaborators like ourselves generally only see patients within that range and furthermore a study which involved a 2-year follow up while the patients continued on drug regimes with stated minimum doses would have been associated with additional difficulties in the very young and the elderly. The three patients excluded from the trial on the grounds of age consisted of a 14 year old male, a 71 year old female, and a 73 year old female. The 37 patients aged 40 or over on admission consisted of 22 females and 15 males. The trial eligible patient aged between 60 and 65 who was not a trial entrant was a 65 year old lady who did not wish to participate in the trial. She would have been very welcome to do so but her refusal meant that there was no-one over the age of 60 to be included in the randomisation process.

EVE C. JOHNSTONE
J. FIONA MACMILLAN
T. J. CROW

Clinical Research Centre,
Watford Road,
Harrow, Middlesex HA1 3UJ

Alcohol Related Problems in Ethnic Minorities

Sir: We read with interest Dr King's paper on at-risk drinking among general practice attenders (*Journal*, May 1986, **148,** 533–540). We were interested to find that there were significantly more Irish and Scots among the at-risk drinkers but were surprised to note that no Asians seemed to fall into the at-risk group. This was in spite of the fact that 28% of the screened population had a country of birth outside the United Kingdom. We have recently looked at the differences in morbidity patterns between Asians and non-Asians with a diagnosis of alcoholic liver disease at the Royal Free Hospital (Banerjee *et al*, 1986). Our results showed that of the 852 biopsies performed showing alcoholic liver disease between January 1978 and November 1984, 58 (6.8%) were from Asian patients. This is a higher percentage than one would expect when corrected for the percentage of Asians in the population.

Previous studies have suggested that there are differences in alcohol sensitivity between different ethnic groups (Chan, 1986; Ewing *et al*, 1974). In addition, it has also been shown that drinking patterns vary between different ethnic groups (Caetano, 1984). We suggest, therefore, that Asians are a high-risk group for alcohol related problems (Balaharan *et al*, 1984) and the apparent low incidence of alcohol related problems in surveys may be due to socio-cultural taboos which result in under-referral to the patient's local general practitioner.

ARPAN BANERJEE
S. S. VIRDEE

The Royal Free Hospital,
Pond Street, London NW3 2QG

References

BALAHARAN, R., BULUSU, L., ADELSTEIN, A. M. & SHUKLE V. (1984) Patterns of mortality among migrants to England and Wales from the Indian subcontinent. *British Medical Journal* **289,** 1185.

BANERJEE, A. K., VIRDEE, S. S. & DEO S. I. (1986) Differences in morbidity/mortality patterns between Asians and non-Asians with a histological diagnosis of alcoholic liver disease (submitted for publication).

CAETANO, R. (1984) Ethnicity and drinking in Northern California. A comparison among Whites, Blacks and Hispanics. *Alcohol and Alcoholism* **19,** 31–44.

CHAN, A. W. K. (1986) Racial differences in alcohol sensitivity. *Alcohol and Alcoholism* **211,** 93–104.

EWING, J. A., ROURE, B. A. & PELLIZARI, E. E. (1974) Alcohol sensitivity and ethnic background. *American Journal of Psychiatry* **131,** 206–210.

Hypomania Following Cognitive Therapy

Sir: We enjoyed reading the letter from Drs Hughes & McKane (*Journal*, March 1986, **148,** 344). They suggest that the patient we describe is typical of a bipolar affective disorder developing in middle life. However, continued assessments of this patient for two years after involvement in the research study have shown no further episodes of affective disturbance. This might be expected in a patient with an initial diagnosis of dysthymia, which in DSM-III terms is a low grade depressive disturbance that is rarely associated with bipolar affective disorder. We were also excited by their hypothesis that the filling in of numerous questionnaires may induce mania. An examination of the data from our study reveals 120 patient-years of questionnaire administration but no other case of mania has been found. Reluctantly, therefore, we had to abandon this hypothesis. We are left, therefore, with an isolated case of mania manifested towards the end of a programme of cognitive therapy. Although no case report proves a hypothesis, it is reasonable to conclude that the

temporal relationship between treatment and the onset of manic symptoms was not entirely coincidental and therefore worthy of report.

DAVID G. KINGDON
PAT FARR
SIOBHAN MURPHY
PETER TYRER

Bassetlaw District General Hospital,
Kilton Worksop,
Nottinghamshire S81 OBD

Radioreceptor Assay of Serum Neuroleptic Concentrations in Psychiatric Patients

Sir: We read with interest the report by Krska *et al*, (*Journal*, February 1986, **148,** 187–193), concerning the usefulness of radioreceptor assays for the measurement of plasma neuroleptic concentrations. We have been assessing the usefulness of a similar assay based on a lyophilised calf caudate preparation and ^{3}H-labelled spiperone ligand, which is available from Wellcome Diagnostics as a 200 assay kit (Lader, 1980). We have found this assay simple to use and reproducible, requiring only 0.2 ml of plasma for each duplicate analysis. The assay has been found to be linear between 15 and 1000 neuroleptic units per litre (1 NU/l equivalent to 1 nmol/l haloperidol).

In contrast to Krska *et al*, who investigated patients on long-term therapy, we are investigating the application of this assay to the management of acute schizophrenia and have so far studied nine patients. All our patients were previously untreated, fitted the RDC criteria for schizophrenia (Spitzer *et al*, 1975), and were treated with haloperidol in doses of between 1.5 and 60 mg per day according to clinical judgement. No other neuroleptic or psychotropic medication was prescribed. We found a significant linear relationship between daily dose of haloperidol and plasma dopamine receptor binding activity ($n = 11$, $r = 0.76$) similar to that reported by Krska *et al*. In three patients who were intensively investigated over a 4–6 week period there was a marked clinical improvement, as assessed on the CPRS rating scale (Åsberg *et al*, 1978). We found a direct relationship between dopamine receptor binding activity, dose and clinical improvement. However, due to the small number of patients, statistical significance could not be reached. This improvement was obtained on doses of between 9 and 20 mg/day haloperiodol, which achieved plasma neuroleptic concentrations of 14–48 NU/l.

Extrapyramidal side-effects, as assessed using the Simpson Rating Scale (Simpson & Angus, 1970), were completely unrelated either to dose or to plasma neuroleptic concentrations. This poor relationship between plasma neuroleptic activity and extra-pyramidal side-effects was confirmed in six additional patients. These findings underline the conclusion reached by Krska *et al*, that for chronic schizophrenics there was no simple relationship between plasma neuroleptic concentrations and side-effects. It is interesting that side-effects seem to be so poorly related to total plasma neuroleptic dopamine blocking "activity" as measured in a radioreceptor assay. This may be because the assay measures only the total plasma concentration of "active" drug *in vitro* rather than reflecting dopamine blocking activity in brain *in vivo*. Another major problem with the use of this technique is that dopamine receptor binding activity may differ from one neuroleptic to another by several orders of magnitude despite equivalent clinical effects. The results are therefore meaningless if the patient is on more than one neuroleptic drug at the same time, a situation which pertains frequently in clinical practice.

Although a number of early reports indicated that radioreceptor assays showed promise, more recent work has been equivocal (Dahl, 1986). It is likely that such assays offer very little advantage over alternative techniques, e.g., gas and liquid chromatography which are capable of measuring parent drugs as well as metabolites which may have activities on different neurotransmitter systems. Much more work is required before dopamine blocking radioreceptor assays can offer any useful information in the management of schizophrenic patients.

MARY BUCKLEY

Academic Department of Psychiatry,
University of Birmingham B15 2TH

ROBIN BRAITHWAITE

Regional Laboratory for Toxicology,
Dudley Road Hospital, Birmingham

References

ÅSBERG, M., MONTGOMERY, S. A., PERRIS, C. *et al.* (1978) A comprehensive psychopathological rating scale. *Acta Psychiatrica Scandinavica*. Supp. 271, 5–27.

DAHL, S. G. (1986) Plasma level monitoring of antipsychotic drugs – clinical utility. *Clinical Pharmacokinetics* **11,** 36–61.

LADER, S. R. (1980) A radioreceptor assay for neuroleptic drugs in plasma. *Journal of Immunoassay* **1,** 57–75.

SPITZER, R. L., ENDICOTT, J. & ROBIN, E. (1975) Preliminary report of the reliability of research diagnostic criteria applied to psychiatric case records in predictability. In *Psychopharmacology Preclinical and Clinical Correlations*. (eds. A. Sudilovsky, S. Gershon & B. Beer) New York: Raven Press.

SIMPSON, G. M. & ANGUS, J. W. S. (1970) A rating scale for extrapyramidal effects. *Acta Psychiatrica Scandinavica* Suppl. 212, 11–19

Neuroleptic Malignant Syndrome

Sir: In their recent review of the neuroleptic malignant syndrome (NMS) Drs Abbott & Loizon (*Journal*, January 1986, **148,** 47–51) recommended sodium dantrolene and bromocriptine as the best treatment options for this syndrome. We wish to suggest the possible use of electroconvulsive treatment (ECT) in NMS in addition to these treatment modalities.

Case Report: We recently treated a patient who presented a NMS which improved with ECT. This 23 year old male schizophrenic patient developed NMS on the fourth day