

CHANNEL CAPACITY, SCHIZOPHRENIA AND DOPAMINE

DEAR SIR,

In his recent article (*Journal*, March 1979, 134, 225-35) C. D. Frith deals with the origins of schizophrenic symptomatology as arising from a failure of restraint of preconscious material from entering consciousness. Like Broadbent, he attributes schizophrenic symptomatology to channel overload somewhere in the brain. The question is where?

Because the CNS is such a complicated matrix of feedback systems, it seems improbable that psychological analysis of schizophrenia will ever unambiguously pinpoint a defect in a specific system. The question therefore needs to be considered at a neurophysiological level and requires electrophysiological analysis with specific reference to the total information transmitted through various brain regions, using the analytical techniques of information theory. The methods of evoked potential analysis and Fourier analysis of the time and space variation of neural activity in various brain regions offer some hope of attacking these problems, although present techniques may well prove inadequately discriminating to detect a reliable difference between schizophrenics and normals.

Some indirect support for channel overload hypotheses can be concluded from recent work on the role of dopamine in the CNS. This work indicates that dopaminergic activity accelerates the rate of information processing in the cortex (Wright and Craggs, 1979, *Experimental Neurology*, 65, 42-52) and as antipsychotic medications appear to be dopamine blockers it follows that their action may be regarded as reducing information overload on the channel.

J. J. WRIGHT

*Department of Psychiatry,
University of Auckland,
School of Medicine,
New Zealand*

DRUG INTERACTION BETWEEN HALOPERIDOL AND METHYLDOPA

DEAR SIR,

This vexing drug interaction is little known, as we have found only two publications (see below) where it was mentioned, haloperidol being given concurrently with methyldopa. We have had such a case.

This 74-year-old white Caucasian female was admitted for the first time to a state hospital when she was in her early twenties. Childhood and adolescence were uneventful, she married at 20, had three children and was described by her relatives to be slovenly, careless and lazy. The diagnosis at

admission was schizophrenia, paranoid type: she was suspicious, worried that everybody wanted to steal from her apartment and finally that her husband wanted to kill her. She was treated with the therapeutic methods of the time. Her condition remained psychotic, but she was manageable.

Lately she had the delusion of pregnancy and that she was about 'to deliver a baby'. As she developed a slight arterial hypertension, she was given methyldopa 250 mg b.i.d. by the treating internist, while the psychiatrist treated her with thioridazine 50 mg b.i.d. and then instead with haloperidol 2 mg b.i.d. because the patient developed ventricular premature beats. After several days she became progressively irritable, aggressive, assaulted other patients and staff, was unmanageable. Although the dose of haloperidol was increased to 24 mg per day, this state of permanent restlessness and assaultiveness did not subside. When the methyldopa was discontinued, and replaced with hydrochlorothiazide 50 mg daily, the patient improved dramatically: her aggressivity and assaultiveness subsided, her paranoid ideation became much less intense and she became again easily manageable. The daily dose of haloperidol was rapidly reduced and is now only 1 mg b.i.d.

This drug interaction is not mentioned in any of the literature inserted with these two widely used drugs. We must not overlook that the older a psychiatric patient becomes, the more likely he is to be treated by a physician for an intercurrent arterial hypertension; therefore it is important to be aware of this possible drug interaction.

IGNAT NADEL
MORTON WALLACH

*Kingsboro Psychiatric Center,
681 Clarkson Avenue,
Brooklyn,
New York 11203*

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CHEAPER CARE OF PARASUICIDES

DEAR SIR,

In their letter entitled 'Cheaper Care of Parasuicides' (*Journal*, July 1979, 135, 92-93) Kennedy and Oswald ask whether the specialist psychiatric services recommended in the Hill report and developed in the Regional Poisoning Treatment

Centres (RPTCs) are expensive luxuries. The answer must surely be that they are. There is no convincing evidence that self-poisoned patients are more effectively treated in a special unit than in a general medical ward and we have shown that for psychiatrists to see every case is as unnecessary as it is impracticable.

We did not find in our trial at Addenbrooke's Hospital, as Kennedy and Oswald state, that house physicians could match psychiatrists in their assessment of self-poisoned patients. What we did find was that medical teams (consisting of house physicians, medical registrars and nurses under their respective consultant physicians) could match consultant psychiatrists and senior registrars in most instances, though they still needed a psychiatric opinion for about one in five of their self-poisoned patients. Kennedy and Oswald equate our study with the one at Charing Cross Hospital (*Journal*, April 1979, 134, 335-42). However, Newson-Smith and Hirsch not only used a rather small sample but also failed to show that social workers were as effective as psychiatrists. In their pilot study only the trainee psychiatrists offered patients help and made decisions about further care and it would require a larger randomized trial (similar to ours) to find how the social workers would have performed had they been given this responsibility.

Kennedy and Oswald criticize the use of medical teams or of social workers to assess self-poisoned patients and produce some figures to show that they offer further treatment to more patients than the RPTC does in Edinburgh. Their figures are misleading as far as the results of our study are concerned: only 40 per cent of our patients were recommended for psychiatric outpatient follow-up. In the study at Charing Cross Hospital social workers understandably diagnosed twice as many patients as being mentally ill as did the trainee psychiatrists and were also more cautious about discharging patients from hospital. But at Addenbrooke's the medical teams made the same diagnoses as the psychiatrists and identified a similar number of patients for psychiatric treatment and social work support.

Kennedy and Oswald believe that the difference between the hospitals is due to the trainee psychiatrists in Edinburgh being 'much more selective and sparing in the use of psychiatric after-care' than the consultants and senior registrars in Cambridge. There may be another explanation. At Edinburgh, all patients referred to the RPTC are admitted, whereas in Cambridge—as in the rest of the country—many patients are screened out in the Accident Department. With these patients (who are offered less psychiatric treatment) excluded, it is hardly

surprising that our figures should differ from theirs. If due allowance is made for this difference in the patient populations, the apparent disparity between the two hospitals largely disappears. In one respect, Edinburgh does differ from Cambridge, namely in the utilization of expensive psychiatric resources. At the RPTC in Edinburgh psychiatrists see all self-poisoned patients for the purpose of selecting less than half of them for treatment.

Compared to the Edinburgh model the liaison scheme at Addenbrooke's is not only cheaper but also teaches junior doctors and nurses how to evaluate suicidal risk and patients' psychosocial difficulties. It has helped to change adverse attitudes in the hospital. In addition, it may contribute towards the prevention of self-poisoning by training future general practitioners, as well as psychiatrists, to assess such patients.

R. GARDNER
R. HANKA

*Addenbrooke's Hospital,
Cambridge CB2 2QQ*

SIMPSON'S PARADOX

DEAR SIR,

The principle behind Simpson's paradox as described by D. J. Hand (*Journal*, July 1979, 135, 90-91) is of great significance and bears reiterating in terms not obfuscated by the use of unnecessary symbols. Simply, the paradox arises from the intuitive temptation to average rates.

When considering rates of two or more subgroups, the overall rate is obtained by adding together the rate, multiplied by the proportion of the total, for each subgroup. In the type of example quoted the paradox is most likely to arise when the rates in each subgroup are very different, and the proportion in each subgroup changes markedly over time, thereby weighting the overall rate towards that of a different subgroup.

A parallel and more easily perceived example, so familiar that it ceases even to be a paradox, would be the purchase of wine. A year ago two cases of claret at £50 a case and one case of Beaujolais Nouveau at £20 a case cost on average £40 a case. This year, with inflation at 20 per cent, restraint necessitates the purchase of one case of claret at £60 and two of Beaujolais Nouveau at £24; an average of £36 per case. Thus although the price (or rate) for each has gone up, the changes in proportions result in the overall price (or rate) going down.

DAVID COSTAIN

*Littlemore Hospital,
Oxford OX4 4XN*