

The age range given (63–83 years) and the fact that only two patients died over a 2-year period may indicate that the abnormal DST results have been associated with slowly progressing dementing illness, as I have suggested elsewhere (1).

One must also view with caution the interpretation that the antidepressant actions of drugs led to a normalization of the DST results. I have recently reviewed the evidence for considering dementia and depression as common manifestations of underlying brain dysfunction (2). Doxepin and imipramine both have anticholinergic properties, and it may well be that the diminution in muscarinic cholinergic hyperfunction—discounted as being responsible for abnormal DST results (3)—leads to the normalization.

REFERENCES

1. Mahendra B: Dementia and the abnormal dexamethasone suppression test. *Br J Psychiatry* 143:98–99, 1984
2. Mahendra B: Dementia and depression: the multi-faceted relationship (editorial). *Psychol Med* (in press)
3. Carroll BJ, Greden JF, Rubin RT, et al: Neurotransmitter mechanism of neuroendocrine disturbance in depression. *Acta Endocrinol* 220:14, 1978

B. MAHENDRA, M.B., M.R.C.PSYCH.
Bodmin, Cornwall, England

Dr. Moffatt Replies

SIR: In answer to Dr. Mahendra's comments, the following data apply to the 12 patients at the start of the study and are supplemented by a progress report at the end of 3 years.

Four patients, three male and one female, showed normal suppression on the first or second DST without use of medication. Their age range was 70–83 years. Their duration of illness was 3–9 years and their duration of inpatient treatment was 1–36 months. Three of the four patients were discharged to nursing homes, and one returned home. Two male patients were returned to the hospital within a few weeks because of restless, aggressive behavior. One of these patients (whose diagnosis of Alzheimer's disease had been confirmed by a brain biopsy 2 years earlier), who previously had been a normal suppressor, now appeared depressed and showed nonsuppression on the DST. The female patient remains in a nursing home, restless and confined to a chair. The fourth male patient, who was initially a nonsuppressor, was recently readmitted from his home in a more demented state. He has a 9-year history of illness and is now age 73; his DST shows normal suppression.

Five patients, two male and three female, showed nonsuppression that changed to normal suppression during treatment with antidepressant medication. Their age range was 67–78 years. Their duration of illness was 3–15 years, and their duration in hospital was 6–30 months.

All five of these patients were discharged to nursing homes. The oldest patient died within 4 months; an autopsy was not performed. The other male patient, who was undergoing imipramine therapy, returned within 3 months in an agitated state and remains an inpatient. The three female patients remain alive but in a physically frail state and are living in nursing homes. Two patients continued taking small-dose doxepin and both still show recognition, at times, of relatives who visit weekly; one continues to enjoy sing-alongs although she has no spontaneous speech. The third patient continues to be mute and unresponsive.

Three patients, two male and one female, continued to show nonsuppression while taking antidepressant medication. Their age range was 63–68 years. Their duration of illness was 4–5 years, and their time in hospital was 2–34 months. The two male patients died in the hospital and an autopsy confirmed the presence of Alzheimer's disease. The female patient remains alive in a nursing home but is mute and unresponsive.

A study by Spar and Gerner (1) and a more recent comprehensive study by McKeith (2) both confirm DST nonsuppression in more than 50% of subjects with senile dementia, Alzheimer's type, on the basis of a 4:00 p.m. blood cortisol estimation following a single dose of the drug. In our serial DSTs, both 4:00 p.m. and 11:00 p.m. cortisol estimations were used. The four normal suppressors did so at both times, and the introduction of antidepressant therapy normalized the 11:00 p.m. cortisol estimation for patients in the other two groups. A random 8:00 a.m. pre-DST cortisol estimation was performed on 11 of the 12 patients; the values ranged from 344 nmol/liter to 760 nmol/liter, the two lowest values coming from the patients who were confirmed on autopsy as having Alzheimer's disease.

With reference to McKeith's study, our 12 patients were part of a larger group in a psychogeriatric unit. We also performed DSTs on eight patients with multi-infarct dementia (50% nonsuppressors), eight patients with Korsakoff's dementia (25% nonsuppressors), and 11 chronic schizophrenic patients, four of whom verbalized depressive feelings (52% nonsuppressors). Only one patient over the age of 75 years was a nonsuppressor. Autopsies have now been performed on nine patients. Seven patients were nonsuppressors, and Alzheimer's disease was confirmed in four, arteriosclerosis plus Alzheimer's disease in one, and normal aging in two. Two patients showed normal suppression, and their autopsy results confirmed a diagnosis of Alzheimer's disease.

As mentioned earlier, the DST was used as a therapeutic rather than a research tool, with the aim of improving the quality of life for patients with advanced dementia.

REFERENCES

1. Spar JE, Gerner R: Does the dexamethasone suppression test distinguish dementia from depression? *Am J Psychiatry* 139:238–239, 1982
2. McKeith IG: Clinical use of the DST in a psychogeriatric population. *Br J Psychiatry* 145:389–393, 1984

JEANNIE MOFFATT, M.B., B.S.
Adelaide, South Australia

ECT-Induced Hyperactive Delirium and Brain Laterality

SIR: In two patients receiving right-unilateral or bilateral ECT, Harold A. Sackeim, Ph.D., and associates (October 1983 issue) noted the occurrence of what they termed "postictal excitement" (which by *DSM-III* criteria is classified "delirium," and is more specifically classified "delirium, hyperactive variant" by Lipowski) (1). In these same patients, hyperactive delirium did not occur when left-unilateral ECT was administered. Dr. Sackeim and associates used these findings to support the hypothesis that stimulation of the right cerebral hemisphere is related to the development of hyperactive delirium.

However, two points suggest that it is premature to speculate that the right cerebral hemisphere subserves pro-

cesses related to the development of ECT-induced hyperactive delirium. First of all, one patient these investigators studied was left-handed. While it is presently unclear what the relationship is between handedness and cerebral asymmetry in the regulation of mood, it should be noted that the inclusion of a left-handed patient in this report related to the complex topic of mood and brain laterality (2-4) probably only clouds the issue. Second, it is unclear what it means to make *specific* statements about mood and brain laterality in the early postictal state (within one hour) of *nonspecific* CNS disturbance following ECT. Many complex, interacting, and rapidly changing systems in the brain are impaired in the early ECT-induced postictal state (5), and it is quite hazardous to give any meaning whatsoever to findings of specific mood alterations in this state. Until more cases are reported, it must be concluded that the hyperactive delirium observed by Dr. Sackeim and associates was the result of a randomly distributed phenomenon of questionable relationship to brain laterality, especially if one throws out the data from the left-handed patient.

This latter point is underscored by the case of a 48-year-old right-handed depressed man we saw who had no family history of left-handedness and who developed hyperactive delirium (consisting of a 30-minute period of agitation, combativeness, incoherent speech, disorientation, and perseveratory behavior, all of which were treated by placing the patient in locked seclusion) immediately following his ninth and 10th bilateral ECTs but who did not develop hyperactive delirium following his first through eighth, 11th, and 12th right-unilateral ECTs. Treatments were administered using a MECTA brief pulse device; the mean (\pm SD) seizure length and mean (\pm SD) electrical energy amount for unilateral treatments were 65 ± 27 seconds and 14 ± 3 J, respectively; for bilateral treatments the means were 123 ± 36 seconds and 22 ± 6 J, respectively.

This result is in direct contrast to the findings and hypothesis of Dr. Sackeim and associates and serves to underscore the point that it may be premature to consider mania and related upward mood swings to be related to predominantly right-cerebral hemispheric dysfunction (3) and that it is even more premature to make this inference regarding nonspecific states of CNS impairment, such as the ECT-induced postictal state.

REFERENCES

1. Lipowski ZJ: Delirium: Acute Brain Failure in Man. Springfield, Ill, Charles C Thomas, 1983, p 49
2. Bear DM: Hemispheric specialization and the neurology of emotion. *Arch Neurology* 40:195-202, 1983
3. Jampala VC, Abrams R: Mania secondary to left and right hemisphere damage. *Am J Psychiatry* 140:1197-1199, 1983
4. Robinson RG, Kubos KL, Starr LB, et al: Mood disorders in stroke patients: importance of location of lesion. *Brain* 107:81-93, 1984
5. Kriss A, Blumhardt LD, Halliday AM, et al: Neurological asymmetries immediately after unilateral ECT. *J Neurol Neurosurg Psychiatry* 41:1135-1144, 1978

WALTER F. DANIEL, B.A.
Durham, N.C.

Dr. Sackeim and Associates Reply

SIR: Mr. Daniel raised doubts as to whether on the basis of the two cases we presented there was sufficient justification

to speculate about lateralization in the regulation of mood. We are perplexed. We did not comment on the neural substrates of mood. We did not suggest that postictal excitement or delirium following ECT was related to manic syndromes, nor do we think such a suggestion would be appropriate. Rather, we raised the possibility that neural substrates involved in postictal excitement are lateralized, since we observed the syndrome following bilateral and right-unilateral ECT and not following left-unilateral ECT. Mr. Daniel failed to note that in line with this suggestion, a phenomenologically similar confusional state also appears to be observed more frequently following right-sided than left-sided stroke (1).

Mr. Daniel raised three arguments in questioning whether the case material justified a suggestion about lateralized neural mechanisms. First, he claimed that the immediate sequelae of seizures reflect generalized CNS disturbance and, therefore, are not lateralized. This claim is contradicted by a vast amount of research indicating that lateralized disturbance in behavioral, neuropsychological, and neurophysiological measures is most prominent in the postictal period and dissipates as time from last electrically induced seizure increases (2). For instance, the effects of left- and right-unilateral ECT in producing dysnomia are dramatically different minutes after the seizure (3). For the purpose of studying lateralized neural processes, the immediate postictal period is most advantageous. Second, Mr. Daniel questioned whether inclusion of a left-handed patient clouded interpretation. With respect to dimensions of lateralization, language is the area in which there is the strongest evidence that handedness predicts individual variation (4). Even here, approximately 70% of left-handers are lateralized similar to right-handers. In the case in question, dichotic listening and tachistoscopic viewing tasks indicated normal superiority in left-hemisphere language processing.

Third, Mr. Daniel presented a case of presumed postictal excitement following bilateral and not right-unilateral ECT. Were this indeed a case of postictal excitement, it would further suggest that manifestation of the syndrome is dependent, in part, on electrode placement, contradicting the claim that patients who manifest the syndrome do so at every treatment (5). However, given the few details it is difficult to evaluate the relevance of this case. Typically, immediately after the seizure, postictal excitement results in thrashing and other self-injurious behavior. These characteristics suggest that the syndrome cannot be treated safely with "locked seclusion."

As we noted, the preliminary indications that electrode placement can influence whether or not postictal excitement is manifested may have both basic and clinical implications. The substrates that produce the acute delirium may be lateralized. A change in electrode placement from right-unilateral or bilateral ECT to left-unilateral ECT may prevent recurrence of the syndrome in some patients. Certainly, further observations are called for.

REFERENCES

1. Mesulam M, Waxman SG, Geschwind N, et al: Acute confusional states with right middle cerebral artery infarctions. *J Neurol Neurosurg Psychiatry* 39:84-89, 1976
2. Malitz S, Sackeim HA, Decina P: ECT in the treatment of major affective disorders: clinical and basic research issues. *Psychiatr J Univ Ottawa* 7:126-134, 1982
3. Pratt RTC, Warrington EK: The assessment of cerebral dominance with unilateral ECT. *Br J Psychiatry* 121:327-328, 1972

4. Hecaen H, DeAgostini M, Monzon-Montes A: Cerebral organization in left-handers. *Brain Lang* 12:261-284, 1981
5. Kalinowsky LB, Hippus H, Klein HE: *Biological Treatments in Psychiatry*. New York, Grune & Stratton, 1982

HAROLD A. SACKEIM, PH.D.
 PAOLO DECINA, M.D.
 SIDNEY MALITZ, M.D.
 NANCY HOPKINS, R.N.
 STUART YUDOFKY, M.D.
 ISAK PROHOVNIK, PH.D.
New York, N.Y.

Reactions of Psychiatric Staff to an AIDS Patient

SIR: Acquired immune deficiency syndrome (AIDS) is being seen with increasing frequency in the health care system. Psychiatric complications of the disorder have been described (1, 2). In the future, increasing numbers of patients with AIDS probably will be seen in various psychiatric settings. Some health care workers, including physicians, have been observed to be reluctant to care for patients with AIDS (3). In this letter I describe some of the reactions of nursing staff on a psychiatric unit to an AIDS patient hospitalized on their ward.

Mr. A., a 30-year-old man, was admitted to a psychiatric service because of his paranoid and agitated behavior. He was psychiatrically stabilized and was later transferred to the medical service, where he was evaluated for lymphadenopathy and esophageal candidiasis. After a month-long evaluation he was given a diagnosis of AIDS and transferred back to the psychiatric service.

An eight-item questionnaire was administered to the psychiatric nursing staff, who completed it anonymously within the first 48 hours after the patient was transferred back to the psychiatry service. Seven questions could be answered "yes" or "no" and an eighth question was an anxiety scale ranging from 1 to 10, 1=least anxious about the patient's diagnosis and 10=most anxious. Eleven of the 12 nursing staff who were on duty during the 48-hour period completed the questionnaire; the 12 nursing staff comprised seven registered nurses and five nursing assistants. Ten of the 12 were women; two were men.

Seven of the 11 (64%) staff who completed the questionnaire were concerned about contracting AIDS even though it was mentioned in the wording of the question that "the disease reportedly is only transmitted by contact with blood or sexual activity." Eight of the 11 (73%) thought that there was a possibility that AIDS could be transmitted by casual interpersonal contact or airborne transmission. Eight staff members (73%) said the diagnosis of AIDS would cause them "to be a little more reluctant to have contact with him." On the anxiety scale, four staff members (36%) recorded a 10 (highest anxiety), three (27%) recorded a 1 (lowest anxiety), and one staff member each recorded ratings of 3, 5, 6, and 9.

Overall, the belief in the possible easy communicability of the disorder and the fear of contracting AIDS were related to higher levels of reported anxiety and staff reluctance to work with the patient. Whether the low level of anxiety reported by some of the staff represented suppression of actually higher levels of anxiety is not clear. Lanza (4) has reported the suppression by nurses of intense reactions to occurrences on a psychiatric unit. Some nurses might be able to deal successfully with their fears; others perhaps are unable to do so. There have been anecdotal reports of nurses quitting their

jobs because they did not want to work with AIDS patients (5).

It is probably unreasonable to expect that all staff will be able to work with AIDS patients fearlessly and without difficulty. It is therefore important to recognize and develop better ways of dealing with the various responses staff might have to patients with AIDS. The intervention should include making more factual information about AIDS available to staff. Psychiatric health workers are generally further removed from the literature on AIDS, since most of it appears in nonpsychiatric nursing and medical publications, and what they read about AIDS in the lay press might have a hysterical undertone. Staff need to be clearly informed about the epidemiologic facts concerning AIDS and told the necessary precautions to be taken in handling blood and other bodily specimens.

REFERENCES

1. Nichols SE: Psychiatric aspects of AIDS. *Psychosomatics* 24:1083-1089, 1983
2. Hoffman RE: Neuropsychiatric complications of AIDS. *Psychosomatics* 25:393-400, 1984
3. Conte J, Hadley W, Sande M: Infection-control guidelines for patients with Acquired Immunodeficiency Syndrome (AIDS). *N Engl J Med* 309:740-744, 1983
4. Lanza ML: A follow-up study of nurses' reactions to physical assault. *Hosp Community Psychiatry* 35:492-494, 1984
5. Batten CP, Tabor R: Nursing the patient with AIDS. *Can Nurse* 79:19-22, 1983

RICHARD B. ROSSE, M.D.
Washington, D.C.

Variation in Suicide and Homicide Rates by Latitude and Longitude in the United States, Canada, and Australia

SIR: In 1973 I reported that homicide rates in the United States were higher in the more southern continental states, while suicide rates were higher in the northern and western states (1).

I obtained 1973 data from the Australian Bureau of Statistics for the suicide and homicide rates of six continental states/territories (New South Wales, Victoria, Queensland, South Australia, Western Australia, and Northern Territory). Homicide rates were higher in the north (Pearson's $r=.96$, two-tailed, $p<.01$), as were suicide rates ($r=.85$, $p<.05$), while there was no significant east-west variation ($r=.20$ and $.09$, respectively). The latitude and longitude of each state, province, or territory were estimated by using the latitude and longitude of the capital city.

Data were also available from the Canadian Vital Statistics for 1976 for 10 continental provinces (Nova Scotia, Quebec, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, Yukon Territory, and Northwest Territories). Suicide rates were higher in the north (Pearson's $r=.79$, $p<.01$) and west ($r=.98$, $p<.01$). Homicide rates also were higher in the north ($r=.88$, $p<.01$) but not in the west ($r=.53$, n.s.).

It can be seen that suicide rates vary similarly in the United States and Canada (higher in the west and north), but the variation is different in Australia, where, for example, there is no east-west variation. The variation of homicide rates is different in all three nations.

This suggests that the variation in suicide and homicide