A COMPARISON STUDY OF DISSOCIATIVE SYMPTOMS IN PATIENTS WITH COMPLEX PARTIAL SEIZURES, MPD, AND POSTTRAUMATIC STRESS DISORDER

Richard J. Loewenstein, M.D.
Frank W. Putnam, M.D.

Richard J. Loewenstein, M.D. is Senior Psychiatrist, Sheppard and Enoch Pratt Hospital, Baltimore, Maryland, and Assistant Clinical Professor, Department of Psychiatry, University of Maryland, School of Medicine, Baltimore, Maryland. Frank W. Putnam, M.D. is Chief of the Unit on Dissociative Disorders, Laboratory of Developmental Psychology, NIMH, Bethesda, Maryland.

Address all correspondence to: Richard J. Loewenstein, M.D., Sheppard and Enoch Pratt Hospital, 6501 N. Charles Street, Baltimore, Maryland. 21285-6815.

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ABSTRACT

Depersonalization and dissociative symptoms have been widely reported in chronic seizure disorder patients, especially those with temporal lobe involvement and complex partial seizures (CPS). It has been theorized that development of multiple personality disorder (MPD) may be related to temporal lobe pathology. We administered the Dissociative Experiences Scale (DES) to 12 male patients with severe chronic epilepsy, primarily of the complex partial type. Patients had had epilepsy from one to thirty years. Most were being evaluated for intractable seizures occurring several times per week. DES data on the epileptic patients were compared with DES data on 9 male MPD patients and 39 male PTSD patients. MPD and PTSD patients were significantly different from CPS patients on median DES scores and all DES sub-scale scores. MPD and PTSD patients were far more similar on the DES, although MPD patients had a significantly higher score on the dissociation/psychogenic amnesia sub-scale of the DES. The authors conclude that there is little data to support a relationship between MPD, dissociation, and epilepsy.

INTRODUCTION

Many of the symptoms reported by patients with complex partial seizures (CPS) are similar to those reported by patients with multiple personality disorder (MPD). These include: blackouts, time loss, fugues, reports of disremembered behavior, depersonalization, derealization, deja vu, jamais vu, deja vecu, dreamy states, anxiety and panic symptoms, hypergraphia, "forced thoughts," uncanny physical sensations, and auditory, visual and olfactory hallucinations (Blumer, 1975; Engel, et al, 1986; Kluft, 1987; McKenna, et al, 1985; Putnam et al, 1984; Putnam et al, 1986; Treiman, 1981). In response to this observation, there have been several reports in the literature which attempt to look at the relationship between epilepsy and dissociative disorders. These reports have included a number of clinical cases as will as speculation about possible neurobiological substrates that could produce similar symptoms in both conditions. In this report, we will critically review these papers and then present data comparing MPD patients and seizure patients on the Dissociative Experiences Scale (DES), a 28-item self-report questionnaire developed by Putnam and Bernstein at the NIMH (Bernstein and Putnam, 1986)

REVIEW OF THE LITERATURE

Among the classic 19th and early 20th century cases of multiple personality disorder, there were several descriptions of an association between epilepsy and dual or multiple personality (Sutcliffe and Jones, 1962; Taylor and Martin,1944). It is difficult to classify these cases by modern criteria either for epilepsy or psychiatric disorder since there are no EEG data and the clinical information is scanty in the reports. In the modern literature, Horton and Miller (1972) and Brende and Rinsley (1981) described cases of MPD in which paroxysmal EEG abnormalities were present, the 1981 case receiving a diagnosis of clinical epilepsy. Treatment was psychodynamically based in these cases, however, and the EEG abnormalities were reported as intercurrent medical problems without major etiological significance. Coons, et al (1982) reported normal EEGs in an extensive electroencephalographic study of two MPD patients. Cocores, et al (1984), reviewed a number of MPD cases in the literature with normal EEGs. They presented a case of their own with normal EEGs despite lengthy recording of six different alters.

Mesulam (1981) and Schenk and Bear (1981), writing in separate journals, reported on the same series of 12 patients

from the Beth Israel Hospital Behavioral Neurology Unit. The patients were said to illustrate a relationship between dissociative symptoms, possession states, and temporal lobe dysfunction or epilepsy. The patients had a variety of symptoms that were all described as "dissociative" by the authors, although no definition of dissociation was provided in either report. No formal diagnostic criteria were used to make the psychiatric diagnoses. Neither paper made an attempt to define the concept of a separate "personality." In several cases, subjective descriptions by the patients of being "different personalities" or "people" were accepted at face value with little attempt to rigorously understand what was meant by such statements. In addition, the two papers are discrepant with respect to descriptions of true epilepsy — as opposed to EEG abnormalities alone — in many of the same patients.

Review of the cases in the two papers suggests that three patients clearly meet DSM-III/DSM-III-R criteria for multiple personality disorder based on the data presented (cases 1-3 in each paper) (American Psychiatric Association, 1980, 1987). According to Mesulam, all three had EEG abnormalities but none had clear cut partial or generalized seizures . Schenk and Bear report histories of clear-cut partial and/or generalized tonic-clonic (GTC) seizures in two of these same three patients, however. One of the latter patients reported head trauma at the age of one year.

Three other cases (Mesulam, 1981, cases 4,5,7; Schenk and Bear, 1981, cases 1,2,4, p. 1313-1314) are harder to classify psychiatrically based on the available data. One patient (#4-Mesulam; #1, p. 1313, Schenk & Bear) — described by Mesulam as being without convulsions, and by Schenk and Bear as having "psychomotor seizures" — probably meets DSM-III-R criteria for atypical dissociative disorder. The other two cases have histories highly suggestive of complex partial seizures, although neither paper explicitly states that seizures were present in either patient. Both patients are described as reporting a subjective sense of being separate "personalities" or "people" with respect to affective, temperamental or behavioral disparities (for example, good and religious versus bad and evil). Neither patient is described as having entities sufficiently developed to be called a personality or personality state by DSM-III/DSM-III-R criteria or a personality or fragment by other criteria presented in the literature (Kluft, 1984). One additional case described only by Mesulam (case 6) would appear to meet criteria for atypical dissociative disorder and possibly MPD, but insufficient data is presented to differentiate between a dissociative disorder, a delusional psychotic state, or the personification of a subjective perception of divergent temperamental or affective states.

The remaining cases, primarily described by Mesulam (see also Schenk and Bear, 1981, case 2, p. 1313), are said to show "possession" states. All of these patients had clear-cut generalized tonic-clonic (GTC) and/or complex partial seizures, at least by history. All would most parsimoniously meet DSM-III/DSM-III-R criteria for organic delusional disorder, and two (Mesulam, 1981, cases 10 and 12) may also meet criteria for organic affective disorder. None of these patients appears to meet DSM-III/DSM-III-R criteria for a dissociative disorder, at least from the material presented. All had religious delusions of demonic possession or control, except one patient who had grandiose delusions of being the Messiah. Although several of the patients described a subjective belief of "possession," it is unclear whether these relatively typical religious delusional states should be equated with the more complex possession phenomena described in the historical, cross-cultural, and anthropological literature (Ellenberger, 1970; Mischel & Mischel, 1958; Pattison & Wintrobe, 1981).

Benson, et al (1986) described two cases which were said to show "dual personality" formation in the context of well-defined epilepsy. With the progression of these patients' seizure disorders, each developed episodic personality changes accompanied by the delusional belief that they were different people (one believed she was Michelle Cassidy). This led to periodic denial of relationships with other family members and delusions of persecution. Based on the data in the report, neither patient meets DSM-III or DSM III-R criteria for a dissociative disorder. Organic delusional disorder would seem to be the correct diagnosis in each case. Additionally, the authors never define the term "personality" and seem confused about the difference between a personality *change* in the context of an organic disorder such as epilepsy and the development of a true alter personality as defined in DSM III/DSM-III-R or as discussed elsewhere in the literature on multiple personality disorder (Kluft, 1984; Loewenstein, 1984).

Drake (1986) presented data on 15 patients with "multiple personality" and epilepsy. Little information is presented in the published abstract. In a number of cases, however, Drake seems to confuse personality change in an organic disorder with alter personality formation in a dissociative disorder. He seems to interpret MPD as a "personality disorder" not an axis I DSM-III condition. Diagnostic criteria for the psychiatric diagnoses were not specified. Two of three patients with apparent multiple personality disorder and EEG abnormalities also had anticonvulsant levels above the therapeutic range.

Coons (1987) described 50 cases of MPD meeting DSM-III criteria as well as displaying amnesia. Five of these had a seizure disorder, documented clinically and by EEG, although two had suffered serious head trauma. Putnam (1986) compared 11 MPD patients reported to have EEG abnormalities with 45 MPD patients reported to have normal EEGs. He found few differences in clinical symptoms, alter personality attributes or childhood histories of trauma. MPD patients with EEG abnormalities were noted to have a higher incidence of hallucinatory experiences, particularly tactile and olfactory hallucinations.

METHODS

The Dissociative Experiences Scale (Bernstein and Putnam, 1986) a 28-item self-report inventory, was administered to a series of patients with clinical seizure disorders being treated or evaluated at the West LA VA Medical Center or at the UCLA Neuropsychiatric Hospital.

Seizure disorder patients had been ill with seizures from

one to thirty years. Table 1 describes the mean length of illness and mean seizure frequencies. Fifty percent of patients had both complex partial and generalized tonic-clonic seizures. Seizure patients were primarily being evaluated for intractable seizures occurring several times per week to several times per day (see Table 1). Several patients had been evaluated for temporal lobectomy for intractable seizures.

In addition, most seizure patients had been seen in psychiatric consultation for a variety of problems including depression and adjustment disorder, conversion disorder (pseudoseizures), personality changes, anxiety, psychotic symptoms, and episodic dyscontrol. One seizure patient had amnesia for episodes of severe rage unrelated to ictal events and also received a diagnosis of atypical dissociative disorder. Another patient with a mixture of pseudoseizures and epilepsy also received a diagnosis of atypical dissociative disorder. Two seizure patients, including the latter patient, described histories of severe family chaos and physical abuse. Several patients described troubled families of origin with childhood histories of object loss, family discord, and parental substance abuse. Despite this, childhood histories of sexual abuse or extreme physical abuse were denied by most of the seizure patients. Patients were asked to fill out the DES as part of their psychiatric evaluation.

No special instructions were given to seizure patients who completed the DES concerning limiting answers to interictal periods. This procedure was adopted in order to maximize reporting of dissociative symptoms and to insure standardization of the testing procedure with the prior use of the DES. Standard instructions for the DES ask the subject to limit answers to periods free from drugs or alcohol.

DES scores of 12 male epileptics were compared with those of 9 male patients meeting DSM-III/DSM-III-R and research criteria for multiple personality disorder and with 36 male combat veteran patients meeting DSM-III criteria for post traumatic stress disorder (PTSD). Patient groups did not differ significantly on demographic variables such as age, race, and social class. Because of complaints of amnesia, all of the male MPD patients had had a negative neurological workup including EEG (most with naso-pharyngeal leads) and head CT scan. Several male MPD patients also had had normal brain MRI scans. One had had a PET scan.

Median DES scores were computed for the entire DES and for each of the 28 items on the questionnaire. In order to more specifically compare groups of symptoms, three subscales based on factor analysis were created by combining DES items (Carlson & Putnam, 1988).The three sub-scales are 1) dissociation/psychogenic amnesia; 2) depersonalization/derealization; and 3) absorption/imaginative involvement.

Non-parametric pairwise comparisons (Kruskal-Wallis test) were made between the median scores for the whole DES, for each DES item, and for the scores on the three subscales, comparing CPS and MPD patients, CPS and PTSD patients, and MPD and PTSD patients, respectively. The Bonferroni correction factor for multiple comparisons was applied to the data analysis (Grove & Andreasen, 1982).

RESULTS

DES Data

Figure 1 shows a scatterplot of the DES scores for the three patient groups. Median scores on the DES were 47.5 for MPD patients, 28.75 for PTSD patients, and 6.8 for CPS patients. The median score for normal subjects was 4.38 in the original validations study performed for the DES (Bernstein & Putnam, 1986). The comparison of median DES scores for the CPS vs. MPD and CPS vs. PTSD groups, respectively, showed a highly significant pairwise difference (see Table 2). Because of the Bonferroni correction — requiring a significance level of $p<.0125$ — the comparison of the MPD vs. PTSD median scores only showed a very strong statistical trend ($p<.0156$; see Table 2).

FIGURE 1

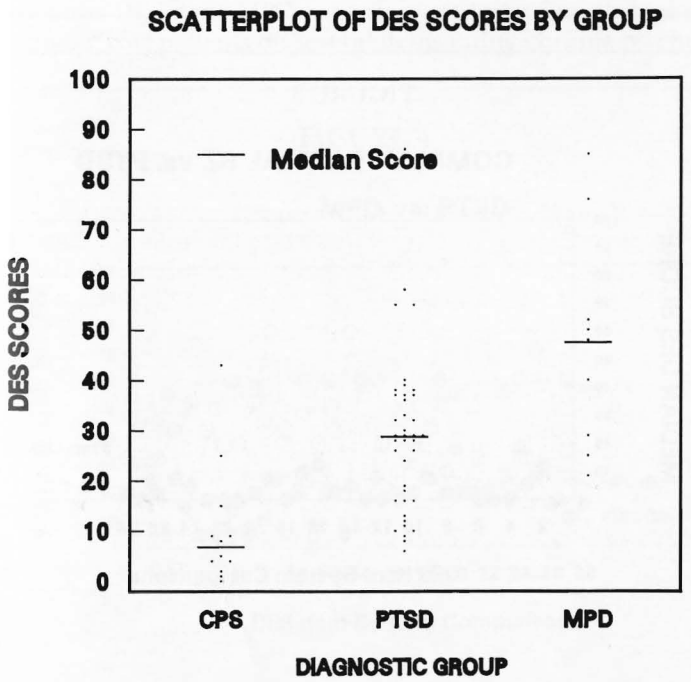


TABLE 1
Seizure frequency in complex partial seizure patients

Mean Length of Illness:	10.41 years (S.D. 6.94)
Mean Frequency of Seizures	
Complex Partial Seizures:	2.88 per week (S.D. 4.54)
Generalized Tonic-Clonic Seizures:	0.74 per week (S.D. .92)
All Types of Seizures:	4.37 per week (S.D. 5.79)

On the DES item-by-item profiles, few similarities were found between the CPS patients and MPD patients (see Figure 2). The male MPD patients' scores on individual items were always at least several times higher than scores of CPS patients. The DES items showing less pronounced differences between CPS patients and MPD patients are those relating to depersonalization, derealization and absorption, not those inquiring about major psychogenic amnesia symptoms.

Despite the large numerical differences in scores between CPS and MPD patients, only a few item-by-item pairwise comparisons reached statistical significance due to the Bonferroni correction (requiring a significance level of $p < .0018$). When DES items are grouped into the three subscale factors, however, comparison of differences between CPS and MPD patients are all highly statistically significant, even with the Bonferroni correction (see Table 2).

A similar trend was noted on the item-by-item pairwise comparisons between CPS and PTSD patients (see Figure 3). PTSD patients scored much higher than CPS patients on most items. These differences reached statistical significance on several item-by-item comparisons, even with the Bonferroni correction. Here again, the comparison of the three DES sub-scale scores between the CPS and PTSD patients was highly significantly different even with the Bonferroni correction (see Table 2).

MPD patients scored much higher than PTSD patients on most items (see Figure 4). PTSD patients actually scored higher than MPD patients on an item rating the ability to spontaneously block out pain (#19). The two groups scored virtually identically on an item inquiring about flashback-like phenomena (#14). Even after the Bonferroni correction, MPD patients scored significantly higher than PTSD patients on pure chronic psychogenic amnesia items relat-

TABLE 2

Kruskal-Wallis two-way comparisons of groups
(Chi-Square Approximation)

Group	DES	DES Subscales		
		Dissociation	Depersonal	Absorption
MPD v. CPS	11.64 (p<.0006)*	10.93 (p<.0009)*	10.71 (p<.0011)*	10.70 (p<.0011)*
PTSD v. CPS	14.08 (p<.0002)*	8.09 (p<.0045)*	15.19 (p<.0001)*	15.28 (p<.0001)*
PTSD v. MPD	5.84 (p<.0156)	8.22 (p<.0041)*	3.32 (p<.068)	2.27 (p<.13)

* *Significance levels of p<.0125 or greater are significant at the 0.05 level or greater after application of the Bonferroni correction for multiple comparisons.*

FIGURE 2

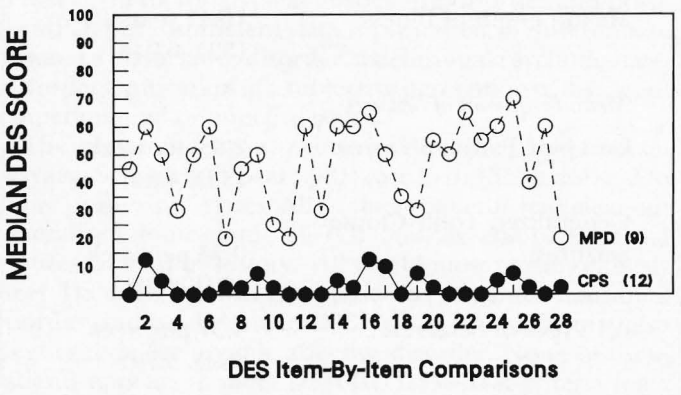
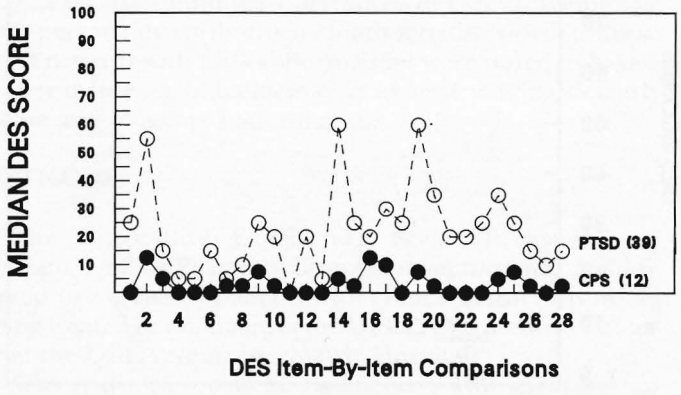


FIGURE 3



ing to perplexing possessions and chronic mistaken identity experiences (#4 and #6, respectively). Comparison of the DES symptom sub-scales between MPD and PTSD patients showed statistical significance only on the psychogenic amnesia factor, not on the other two (see Table 2).

DISCUSSION

The bulk of the literature on MPD and epilepsy has adopted the strategy of looking at EEG abnormalities in putative dissociative disorder patients. We adopted a different strategy. We looked systematically at chronic complex partial seizure patients since this is a group which would be expected to have a higher incidence of dissociative symptoms, assuming that the Mesulam/Schenk and Bear/ Benson hypothesis is correct. We compared these patients with demographically similar, neurologically normal MPD patients. We hypothesized that if chronic temporal lobe dysfunction predisposed to interictal dissociative symptoms, this group of seizure patients would be likely to show such symptoms since they had long histories of frequent and uncontrolled seizures. In addition, since most had already been referred for psychiatric intervention, it would be less likely that we were selecting a sample of patients who did not have interictal behavior problems despite chronic seizures. Seizure patients did report a relatively high incidence of loss of memory for significant life events. Some seizure patients do report permanent loss of long term memories due to ongoing seizure activity (Blumer, 1975). This is a very different process, however, than that of the reversible psychogenic amnesias in dissociative states. In dissociative disorders, short and long term memories are unavailable to the conscious mind, although accessible with psychotherapy and/ or hypnosis .

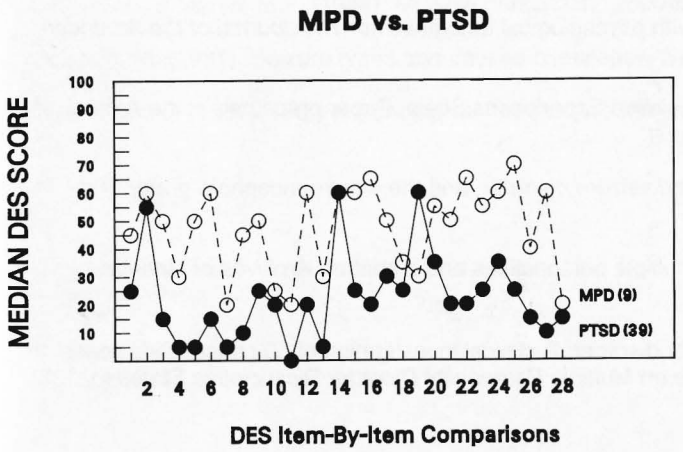
In this study, MPD patients look very little like CPS patients on the DES. On the other hand, male MPD patients and PTSD patients have much more similar scores, with the combat veterans actually scoring higher than MPD patients on one DES item. MPD patients scored significantly higher than PTSD patients on several items rating chronic psychogenic amnesia, however. These findings are consistent with the view that posttraumatic stress disorder frequently includes major dissociative symptoms and that patients with multiple personality disorder frequently also meet criteria for posttraumatic stress disorder (Kluft, 1987; Putnam, 1985; Speigel, 1984).

Although the item-by-item pairwise comparisons between the patient groups frequently did not meet statistical significance after the Bonferroni correction, the overall trend of the DES item-by-item scores dramatically illustrates the differences between the CPS, MPD, and PTSD groups. Differences in the median DES scores between patient groups are highly statistically significant for the MPD vs. CPS and MPD vs. PTSD comparisons and show a strong trend for the MPD vs. PTSD comparison. In addition, the comparison of the DES item sub-scales shows significant differences between CPS and MPD patients as well as between CPS and PTSD patients on all three factors. MPD and PTSD patients differ significantly only on the dissociation/psychogenic amnesia sub-scale, however. The latter finding underscores the overlap in symptoms between these MPD and PTSD patients, with the MPD patients having more marked psychogenic amnesia symptoms.

Although the findings in this study are quite striking, the small sample of CPS patients suggests caution in assuming that there is never a relationship between dissociative symptoms and temporal lobe dysfunction and/or epilepsy. On the other hand, this study represents the first systematic attempt to look rigorously at dissociative symptoms in epileptics and to compare findings with a control group of dissociating patients. A subsequent study of approximately 60 intensively investigated CPS patients compared to MPD patients with and without pseudoseizures has recently been completed and submitted for publication (Davinsky O., Putnam F.W., Grafman J., Bromfeld E., and Theodore W.H., unpublished data). DES findings in that work were quite similar to those in the present study.

This study suggests an alternative view to the hypothesis that dissociative symptoms share the same underlying temporal lobe mechanism with complex partial seizures. It may be that the symptoms that overlap the most in the two groups are manifestations of different basic processes. In analyzing this problem, it is important to distinguish among several groups of symptoms in epilepsy, MPD, and PTSD patients, respectively. First, there are the peri-ictal symptoms of complex partial seizures including amnesia, fugues, disremebered behavior, hallucinations, dreamy states, deja vu, and deja vecu (Engel et al., 1986; McKenna et al., 1985; Treiman, 1981). Second, there are inter-ictal symptoms reportedly characteristic of some temporal lobe epileptics including hypergraphia, hyperreligiosity, emotional viscosity, and hyposexuality (Blumer, 1975; Blumer & Benson, 1975; Engel et al., 1986). Next, there are the dissociative symptoms noted in MPD including amnesias, trance states, hallucinations, fugues, and depersonalization (Kluft, 1987; Putnam et al., 1984; Putnam et al., 1986). Finally, there are posttraumatic symptoms which include nightmares, flashbacks, hyperarousal, intrusive images, avoidance of triggering stimuli, and emotional numbing (van der Kolk, 1986).

FIGURE 4



The dissociative-like symptoms of epilepsy are virtually all peri-ictal symptoms. Despite this, the groups that have claimed a relationship between temporal lobe dysfunction and dissociation have primarily focused on dissociative disorders as interictal phenomena. Our sample of chronic refractory seizure patients, however, describe little in the way of interictal dissociative-like phenomena. Clinically, MPD patients with true epilepsy can often readily distinguish between their organic seizures and their MPD related problems, although in other cases this is more problematic. MPD patients frequently present with pseudoseizures, but these are not true ictal events and frequently disappear when worked through in psychotherapy (Kluft, 1987).

It is possible that temporal lobe and limbic structures that are abnormally activated in temporal lobe seizures are involved in generating dissociative symptoms as well as the more "paroxsysmal" symptoms of PTSD — intrusions, nightmares, revivifications, flashbacks, hyperarousal. This may only imply "phenocopy" phenomena, however — a neurobiological final common pathway through which different processes are expressed, not a situation where there is a true distal etiological relationship between temporal lobe dysfunction and dissociation and post traumatic stress symptoms.

Based on the current state of the data, it is clear that the vast majority of MPD patients do *not* have detectable EEG abnormalities. Nonetheless, a number of patients with dissociative disorders have been described with EEG abnormalities or frank seizure disorder. Without good population data for comparison, however, it is impossible to know whether this represents an excessive prevalence of these abnormalities as compared with well-matched general population samples or samples of non-MPD child abuse survivors with or without diagnosable childhood-onset post traumatic stress disorder. When dissociative disorder patients present with abnormal EEGs, historical data about childhood and adult head injury needs to be assiduously pursued since many of these patients were physically battered and/or medically neglected in childhood. In addition, many of these patients may be taking psychoactive medications and/or abusing drugs or alcohol. Thus, EEG abnormalities in these patients need to be carefully evaluated to rule out the effects of drug or alcohol use or withdrawal.

It remains to be seen whether there are any significant differences in the clinical outcome between MPD patients with EEG abnormalities and those without. Although the findings in this study must be interpreted with caution due to the small sample size, the current data suggests that cerebral dysrhythmia is unlikely to make a major contribution to the development of MPD and dissociative disorders in most cases. ■

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