CME ACTIVITY

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CME Objectives

After completing this CME activity, the psychiatrist should be able to:

- Recognize that intermittent explosive disorder is an impulse-control disorder characterized by discrete episodes of failure to resist aggressive impulses that result in assault or property destruction.
- Report that intermittent explosive disorder may be a treatable cause of violent behavior.
- Demonstrate that intermittent explosive disorder may frequently co-occur with other Axis I psychiatric disorders, especially mood disorders.
- Deduce that intermittent explosive disorder may respond to medications with antidepressant or mood-stabilizing properties.

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DSM-IV Intermittent Explosive Disorder: A Report of 27 Cases

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Background: The authors' objective was to provide data regarding the demographic, phenomenological, course of illness, associated psychiatric and medical comorbidity, family history, and psychiatric treatment response characteristics of rigorously diagnosed subjects who met DSM-IV criteria for intermittent explosive disorder.

Method: Twenty-seven subjects meeting DSM-IV criteria for a current or past history of intermittent explosive disorder were given structured diagnostic interviews. The subjects' medical histories, family histories of psychiatric disorders, and responses to psychiatric treatments were also assessed.

Results: Most subjects described their intermittent explosive disorder symptoms as very distressing and/or highly problematic. All 27 subjects described aggressive impulses prior to their aggressive acts. Of 24 subjects who were systematically queried, 21 (88%) experienced tension with the impulses; 18 (75%), relief with the aggressive acts; and 11 (48%), pleasure with the acts. Most subjects stated that their aggressive impulses and acts were also associated with affective symptoms, particularly changes in mood and energy level. Twenty-five (93%) subjects had lifetime DSM-IV diagnoses of mood disorders; 13 (48%), substance use disorders; 13 (48%), anxiety disorders; 6 (22%), eating disorders; and 12 (44%), an impulse-control disorder other than intermittent explosive disorder. Subjects also displayed high rates of comorbid migraine headaches. First-degree relatives displayed high rates of mood, substance use, and impulse-control disorders. Twelve (60%) of 20 subjects receiving monotherapy with an antidepressant or a mood stabilizer reported moderate or marked reduction of their aggressive impulses and/or episodes.

Conclusion: Intermittent explosive disorder appears to be a bona fide impulse-control disorder that may be related to mood disorder and may represent another form of affective spectrum disorder.

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Intermittent explosive disorder is defined in DSM-IV as an impulse-control disorder not elsewhere classified and is characterized by discrete episodes of failure to resist aggressive impulses that result in serious assaultive acts or destruction of property.[1–5] Also, the degree of aggression expressed during an episode is grossly out of proportion to any precipitating psychosocial stressors, and the explosive episodes are not better accounted for by another mental disorder or due to the direct physiologic effects of a substance or a general medical condition.

Although operational diagnostic criteria for intermittent explosive disorder have been included in the DSM since 1980, very little is known about this disorder. In a recent review of the literature, we found no systematic studies of a series of rigorously diagnosed individuals with DSM-IV intermittent explosive disorder and few studies of subjects with DSM-III or DSM-III-R intermittent explosive disorder.[6–16] Few of the latter studies, however, systematically assessed the phenomenology, associated psychopathology, or treatment response of the subjects. Moreover, although there are many studies of subjects with episodic dyscontrol or explosive rage (e.g., rage outbursts),[5,17–20] it is unclear how many of these subjects would meet the DSM-IV criteria for intermittent explosive disorder, as many subjects had underlying neurologic (e.g., epilepsy) or psychiatric (e.g., schizophrenia) disorders that could account for their rages. Indeed, some authorities continue to doubt the validity of intermittent explosive disorder as an independent disorder, seeing loss of control of aggressive impulses (e.g., rage outbursts) instead as a nonspecific symptom that oc-

curs in a wide range of psychiatric and medical disorders.[1,4,5]

Nevertheless, it has been hypothesized that intermittent explosive disorder is in fact a distinct mental disorder that may be much more prevalent than realized, is associated with significant morbidity, is an important cause of violent behavior, is related to other psychiatric disorders (especially impulse control, mood, and substance use disorders), and may respond to available psychotropic medications.[1–5,21,22] Therefore, to further characterize this disorder, we report here on the demographics, phenomenology, course of illness, associated psychopathology, and medical, family, and psychiatric treatment histories of 27 consecutive persons meeting the DSM-IV criteria for intermittent explosive disorder.

METHOD

Subjects with apparent intermittent explosive disorder were recruited by asking clinicians from our medical center and from a local halfway house for difficult-to-place felons to refer to us individuals with impulsive aggressive outbursts resulting in serious assaultive acts or destruction of property. Subjects were also recruited by a newspaper advertisement, which asked persons with rage outbursts to participate in an interview study. Inclusion criteria for the study were (1) being age 18 years or older, (2) having a current or past history of intermittent explosive disorder by DSM-IV criteria, and (3) providing written informed consent after the study procedures had been fully explained. A serious assaultive act was defined as striking or otherwise hurting another person. Property destruction was defined as the purposeful breaking of any valuable object (e.g., breaking a dish, television, or window, punching a hole in a wall). Per the DSM-IV C criterion for intermittent explosive disorder, subjects were excluded if their aggressive episodes were better accounted for by another mental disorder (e.g., antisocial or borderline personality disorders, a psychotic disorder, a manic episode, conduct disorder, or attention-deficit/hyperactivity disorder) or were due to the direct physiologic effects of a substance or a general medical condition. For example, aggressive episodes were attributed to isolated antisocial acts or to antisocial or borderline personality disorder if they were premeditated, performed impulsively but still under the individual's volition or control, or performed to achieve some desired effect or goal; to mania or hypomania if they occurred only during hypomanic or manic episodes; to psychosis if they occurred only with psychotic symptoms; or to intoxication if they occurred only when under the influence of alcohol or drugs.

After providing informed consent, each subject was given a structured interview based on the DSM-IV criteria for intermittent explosive disorder (available from the authors upon request); a semistructured interview to elicit demographic data and information about the phenomenology and course of their intermittent explosive disorder (also available from the authors upon request); and the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/P)[23] augmented with a module for other impulse-control disorders. Medical history, including history of brain trauma and neurologic illness, was also obtained. Of note, personality and medical disorder diagnoses were determined clinically. Family history of psychotic, mood, anxiety, eating, and impulse-control disorders in first-degree relatives was determined via the family history method.[24] Response to various psychiatric treatments was also assessed.

RESULTS

Twelve subjects were referred for evaluation by mental health professionals from our medical center, 15 were referred by staff from the halfway house for difficult-to-place felons, and 9 were self-referred in response to the newspaper advertisement. Twenty-seven (75%) of these subjects met the DSM-IV criteria for current or past intermittent explosive disorder. Nine (25%) subjects (all referred from the halfway house) were excluded because their aggressive episodes were better accounted for by bipolar disorder (N = 5), substance abuse (N = 3), and antisocial personality disorder (N = 1).

The demographic and clinical features of the subjects are shown in Table 1. Most subjects (N = 20) were men. The subjects' mean ± SD age was 34 ± 9 years; their mean ± SD age at onset of intermittent explosive disorder was 14 ± 7 years; and their mean ± SD duration of illness was 20 ± 11 years. Most subjects stated that their intermittent explosive disorder symptoms were chronic or episodic. Twenty-three subjects reported symptoms that met syndromal intermittent explosive disorder at the time of interview, and 4 subjects described subthreshold symptoms. Only 7 subjects (all of whom were clinically referred) had previously received a diagnosis of intermittent explosive disorder.

Regarding the nature of their aggressive episodes, 2 subjects had destroyed property only, 4 subjects had seriously assaulted another person only, and 20 subjects had done both. Eleven (41%) subjects admitted to attempting

Table 1. Demographic and Clinical Features of 27 Subjects With DSM-IV Intermittent Explosive Disorder

Variable	Value[a]
Age, y (mean ± SD)	34 ± 9
Sex (male) (%)	20 (74)
Age at onset, y (mean ± SD)	14 ± 7
Duration of illness, y (mean ± SD)	20 ± 11
Course[b]	
Episodic[c]	6 (29)
Continuous, stable	2 (10)
Continuous, improving	5 (24)
Continuous, worsening	8 (38)
Aggressive impulses	27 (100)
Destruction of property only	2 (7)
Assault only	4 (15)
Both destruction of property and assault	20 (74)
Assault with a weapon	10 (37)
Attempted homicide	11 (41)
Homicide	1 (4)
Frequency of episodes/mo (mean ± SD)	9 ± 14
Duration of episodes, min (mean ± SD)	22 ± 23
Triggered episodes[d]	24 (92)
Spontaneous episodes[d]	19 (73)
Problems[e]	
Distress	18 (75)
Social impairment	19 (79)
Vocational impairment	15 (62)
Legal	15 (62)
Financial	6 (25)

[a]Values are presented as N(%) unless otherwise noted.
[b]Data obtained for only 21 subjects.
[c]Episodic course defined as having at least one 2-month period without intermittent explosive disorder symptoms.
[d]Data obtained on only 26 subjects.
[e]Data obtained on only 24 subjects.

homicide during an episode. Ten (37%) subjects had assaulted another person with a weapon. One subject (who was self-referred) admitted to killing a person during an episode. All subjects stated that their aggressive acts were very brief, with a mean ± SD duration of 22 ± 23 minutes.

All subjects also described aggressive impulses or violent urges prior to their aggressive acts. These impulses were variously described as the "need to attack," the "need to defend oneself," the "need to strike out," an "adrenalin rush," "seeing red," or the "urge to kill someone." Most subjects' intermittent explosive disorder symptoms met the strict DSM-IV definition of an impulse-control disorder. Of 24 subjects systematically asked about their intermittent explosive disorder symptoms, 21 (88%) described tension with the aggressive impulses and 18 (75%) described relief with the aggressive episodes. Eleven (46%) of these 24 subjects also described pleasurable feelings with the aggressive episodes.

As required by the DSM-IV B criterion for intermittent explosive disorder, all subjects reported that the degree of aggressiveness expressed during their episodes was grossly out of proportion to any precipitating psychosocial stressors. Indeed, most subjects stated that their episodes were triggered by a variety of psychosocial stressors, most commonly, minor conflicts with other people. However, 19 subjects stated that they also had spontaneous aggressive episodes.

Most subjects reported problems with chronic anger and frequent "subthreshold" episodes, in which they experienced aggressive impulses but either managed to resist enacting them or engaged in less destructive aggressive behaviors (e.g., screaming, punching a wall without damaging it). These subthreshold episodes were very similar to the "anger attacks" described by Fava et al.[25,26]

As shown in Table 1, most subjects viewed their intermittent explosive disorder symptoms as highly problematic. Of 24 subjects systematically asked about their intermittent explosive disorder–related problems, 18 subjects described their aggressive impulses and episodes as extremely distressing, 19 reported social problems, 15 reported vocational problems, 15 reported legal problems, and 6 reported financial problems.

Most subjects attempted to control their intermittent explosive symptoms. Sixteen subjects reported repeated efforts to resist or suppress their aggressive impulses or behaviors. Eighteen subjects reported avoidance of situations that triggered their impulses, such as isolation from people, avoiding conflict, and walking away from "risky" situations. Nine subjects reported hiding their symptoms.

Most subjects reported that their aggressive episodes were associated with affective symptoms, particularly changes in mood and energy level. As shown in Table 2, the most common affective symptoms associated with the impulses and acts were manic like, and included irritability/rage, increased energy, and racing thoughts. After performance of the acts, the most frequent affective symptoms were depressed mood and decreased energy.

Some subjects reported that their aggressive episodes were often preceded or accompanied by physical symptoms (see Table 2). Specifically, 9 (33%) subjects stated their aggressive episodes were preceded by autonomic symptoms (e.g., tingling, tremor, palpitations, chest tightness, head pressure, hearing an echo), and 14 (52%) subjects stated their episodes were associated with some degree of loss of or change in awareness. No subjects, however, described complete amnesia for their episodes.

As shown in Table 3, subjects displayed high rates of comorbid Axis I disorders. Twenty-six (96%) subjects met DSM-IV criteria for 1 or more comorbid lifetime Axis I psychiatric disorders, and 19 (70%) met criteria

Table 2. Phenomenology of Intermittent Explosive Disorder Episodes in 24 Subjects With Intermittent Explosive Disorder

Clinical Feature	N	%
Impulse-control disorder symptoms		
Tension with impulses	21	88
Relief with acts	18	75
Pleasure with acts	11	16
Physical symptoms		
Premonitory	13	54
Loss of or change in awareness		
With impulses	8	33
During acts	14	58
After acts	3	12
Affective symptoms		
With impulses		
Irritability/rage	22	92
Anxiety	10	42
Depressed mood	8	33
Euphoria	1	4
Increased energy	20	83
Decreased energy	0	
Racing thoughts	15	62
During acts		
Irritability/rage	19	79
Anxiety	5	21
Depressed mood	4	17
Euphoria	4	17
Increased energy	23	96
Decreased energy	0	
Racing thoughts	16	67
After acts		
Irritability/rage	6	25
Anxiety	2	8
Depressed mood	13	54
Euphoria	0	
Increased energy	5	21
Decreased energy	13	54
Racing thoughts	8	33

Table 3. Current and Lifetime DSM-IV Axis I Diagnoses in 27 Subjects With Intermittent Explosive Disorder

	Current Diagnosis		Lifetime Diagnosis	
Diagnosis	N	%	N	%
Mood disorders				
Major depressive[a]	9	33	10	37
Bipolar I	9	33	9	33
Bipolar II	3	11	3	11
Bipolar NOS	2	7	2	7
Cyclothymia	1	4	1	4
Total	24	89	25	93
Substance abuse				
Alcohol	1	4	12	44
Drug	1	4	9	33
Any	2	7	13	48
Anxiety disorders				
Panic disorder	4	15	7	26
Agoraphobia without panic	0		0	
Social phobia	5	19	6	22
Simple phobia	3	11	3	11
Obsessive-compulsive disorder	6	22	6	22
Posttraumatic stress disorder	6	22	7	26
Any	10	37	13	48
Somatoform disorders				
Pain disorder	1	4	1	4
Body dysmorphic disorder	1	4	1	4
Any	2	7	2	7
Eating disorders				
Anorexia nervosa	0		1	4
Bulimia nervosa	0		3	11
Binge eating disorder	5	19	6	22
Any	5	19	6	22
Impulse-control disorders				
Kleptomania	3	11	5	19
Pathological gambling	3	11	4	15
Pyromania	0		2	7
Trichotillomania	0		0	
Compulsive buying	6	22	10	37
Compulsive skin picking	1	4	1	4
Paraphilias	1	4	3	11
Any	9	33	12	44
Psychotic disorders	0		0	

[a]One subject with major depressive disorder also had substance (antidepressant)-induced hypomania.

for 3 or more disorders. Twenty-five (93%) subjects met DSM-IV criteria for a lifetime diagnosis of a mood disorder, with 14 (52%) meeting criteria for a bipolar disorder. The onset of mood disorder preceded, occurred with, or occurred after the onset of intermittent explosive disorder in 10, 4, and 8 subjects, respectively. Of note, 11 subjects described a relationship between their affective and intermittent explosive symptoms: 6 reported that their aggressive impulses and acts typically increased during depressive episodes, whereas 5 stated that their symptoms increased when they experienced manic, particularly mixed, affective symptoms. Five of the 7 women reported an increase in their intermittent explosive symptoms when they were premenstrual.

Other disorders frequently displayed by the subjects were anxiety disorders (N = 13) (especially panic disorder, posttraumatic stress disorder, phobias, and obsessive-compulsive disorder), psychoactive substance use disorders (N = 13) (especially alcohol abuse and dependence), eating disorders (N = 6) (especially binge-eating disorder), and other impulse-control disorders (N = 12). All 13 subjects with comorbid substance use disorders described a relationship between their substance use and their intermittent explosive symptoms: 7 reported that alcohol worsened their symptoms, whereas 7 stated that marijuana (N = 5) or alcohol (N = 2) reduced their symptoms.

Childhood psychiatric histories of the subjects were notable for hyperactivity in 12, impaired attention in 14, a diagnosis of attention-deficit/hyperactivity disorder in 5, stimulant treatment in 4, problematic temper tantrums in 15, stealing in 14, and fire setting in 8.

Table 4. Responses of 21 Subjects With DSM-IV Intermittent Explosive Disorder to Psychotropic Medications

Medication	Number of Trials	Favorable Response (No. of Patients)[a]
SRI monotherapy		
Fluoxetine[b]	2	0
Sertraline	3	1
Venlafaxine[c]	5	4
Total	10	5
Mood-stabilizer monotherapy		
Lithium[d]	2	1
Valproate[e]	8	6
Total	10	7
Antipsychotic monotherapy	1	0
Psychostimulant monotherapy	2	0
Mood stabilizer/SRI combination	1	0
Mood stabilizer/antipsychotic combination	1	1

[a]Favorable response defined as ≥ 50% improvement in intermittent explosive disorder symptoms.
[b]Both subjects displayed worsening of their intermittent explosive disorder symptoms. Of note, both subjects had bipolar disorder.
[c]All 4 subjects responding to venlafaxine had major depressive disorder.
[d]The subject responding to lithium had bipolar I disorder.
[e]The 6 subjects responding to valproate had bipolar I disorder (N = 4), bipolar II disorder (N = 1), or bipolar disorder NOS (N = 1).

When asked about their medical histories, 5 subjects reported irritable bowel syndrome; 4 reported asthma, chronic rhinitis, or inhalant allergies; 2 reported diabetes; and 1 each reported obesity, tuberculosis, hearing loss, hypertension, hypercholesterolemia, lumbar fusion surgery, hysterectomy, and cholecystectomy. Regarding their neurologic histories, 12 subjects met criteria for migraine headaches, 4 subjects reported at least 1 episode of head trauma associated with loss of consciousness or a fractured skull, and 1 subject reported tics. Of note, no subject reported having had a seizure. Also, no subject had a diagnosis of seizure disorder or epilepsy.

History of psychiatric disorders among 140 first-degree relatives aged 16 years or older was obtained in 25 subjects (2 subjects were adopted). Fourteen (56%) of these subjects had at least 1 first-degree relative with a mood disorder, 20 (80%) subjects had at least 1 first-degree relative with substance use disorder, 2 (8%) subjects had a first-degree relative with an anxiety disorder, 2 (8%) subjects had at least 1 first-degree relative with an eating disorder, and 14 (56%) subjects had a first-degree relative with an impulse-control disorder. Eight (32%) subjects had a first-degree relative with probable intermittent explosive disorder.

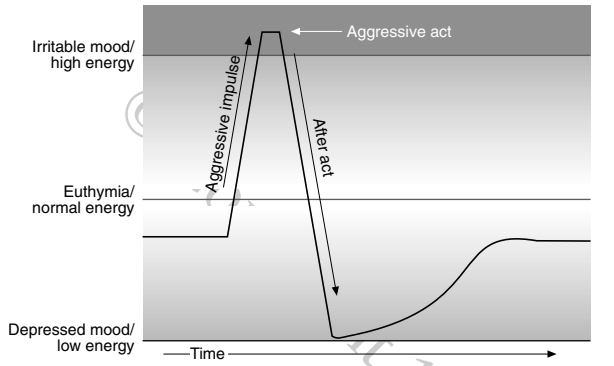
Of 4 subjects receiving supportive or insight-oriented psychotherapy while experiencing intermittent explosive symptoms, 3 (75%) reported that it helped them increase control over their aggressive impulses. Of 2 subjects receiving behavior therapy for intermittent explosive disorder, 1 reported reduction in explosive symptoms. Of the 4 subjects who reported receiving group, couples, or family therapy while experiencing intermittent explosive disorder symptoms, none stated that it helped their symptoms. As shown in Table 4, of 20 subjects receiving monotherapy with an antidepressant or mood stabilizer while symptomatic, 12 (60%) described a moderate or marked reduction of aggressive impulses and acts.

DISCUSSION

We assessed the demographics, phenomenology, course of illness, associated psychopathology, medical and neurologic histories, family histories of psychiatric disorders, and psychiatric treatment histories of 27 persons meeting the DSM-IV criteria for intermittent explosive disorder. One striking finding of this study was the consistent description subjects provided of their aggressive episodes. All subjects described irresistible impulses to be aggressive prior to their aggressive acts. Per the DSM-IV definition of an impulse-control disorder, most subjects stated that their aggressive impulses were associated with tension and that their aggressive acts were associated with relief of tension that was sometimes pleasurable. Most subjects stated that their explosive episodes were also associated with affective symptoms. Specifically, most subjects described maniclike symptoms (especially irritability/rage, increased energy, and racing thoughts) during their aggressive impulses and acts, and rapid onset of depressed mood and fatigue after the acts. In short, subjects' descriptions of their aggressive episodes resembled a severe and dysphoric, but brief, mood swing of bipolar disorder (see Figure 1). Indeed, many of the subjects with a comorbid bipolar disorder claimed that the mood and energy changes associated with their aggressive episodes were qualitatively similar to (but much briefer than) those associated with their hypomanic or manic episodes.

Another striking finding of this study was that all subjects demonstrated substantial Axis I psychopathology in addition to intermittent explosive disorder—most notably major mood disorders, but also substance use, anxiety, eating, and other impulse-control disorders. Childhood histories showed high frequencies of problematic temper tantrums, impaired attention, hyperactivity, and other behavioral difficulties, such as stealing and fire setting. In addition, neurologic histories were notable for a low rate of seizure disorders, but a high frequency of migraine

Figure 1. Mood and Energy Changes Associated With an Explosive Episode of Intermittent Explosive Disorder



headache. First-degree relatives of the subjects displayed high rates of substance use, mood, and other impulse-control disorders, including intermittent explosive disorder. Finally, of 20 subjects receiving monotherapy with a thymoleptic, 12 (60%) reported reduction of their aggressive impulses and acts.

These findings are limited by several methodological limitations. Most importantly, subjects were recruited in part from psychiatric referrals. This very likely led to higher rates of associated Axis I psychopathology in this study than in persons with intermittent explosive disorder in general. In addition, interviews were performed by an investigator who was not blind to the subjects' diagnoses, and no comparison group was examined. Thus, the high rates of associated psychopathology found in this study might be largely attributable to the method of subject selection and/or investigator bias. Indeed, although subjects who were clinically, self-, and legally referred displayed similar rates of mood disorder (100%, 100%, and 71%, respectively), clinically referred subjects displayed a much higher rate of bipolar disorder (82%) as compared with self- and legally referred subjects (33% and 43%, respectively). However, legally referred subjects displayed a higher rate of substance use disorders (71%) compared with clinically and self-referred subjects (36% and 56%, respectively). A more accurate assessment of these rates can be obtained only by controlled studies using interviews of subjects with intermittent explosive disorder recruited from community-based samples conducted by interviewers who are blind to subjects' diagnoses.

Another limitation of this study is that not all relevant phenomenological, associated psychopathology, and medical (especially neurologic) data were collected. For example, subjects' intermittent explosive disorder symptoms were not systematically assessed for associated anxiety (especially panic) symptoms and other symptoms of sympathetic nervous system arousal—symptoms that have been described by Fava et al.[25,26] to commonly occur in anger attacks. Although preliminary data suggest that intermittent explosive disorder may be associated with elevated rates of antisocial and borderline personality disorders[9,10,16] and that attention-deficit/hyperactivity disorder may be associated with episodic dyscontrol,[13,20] Axis II disorders and residual attention-deficit/hyperactivity disorder were not systematically assessed in subjects using structured interviews. Also, medical and neurologic histories were not supplemented with physical examinations, electroencephalograms, brain computed tomography scans, or brain magnetic resonance imaging. Thus, the rate of medical disorders and neurologic abnormalities in this cohort may have been underestimated as compared to other cohorts,[14] and some subjects' explosive episodes might have been better accounted for by the DSM-IV diagnosis personality change due to a general medical condition, aggressive type rather than intermittent explosive disorder.

Yet another limitation is that the explosive episodes of some subjects with comorbid bipolar disorder may have been better accounted for by their bipolar disorder rather than by a second diagnosis. However, per the DSM-IV criteria, subjects who displayed aggressive impulses and acts only when hypomanic or manic were excluded. Moreover, all subjects with comorbid bipolar disorder clearly described explosive episodes that occurred during euthymic or depressive periods that were far too brief to meet the DSM-IV diagnostic criteria for a hypomanic or manic episode.

Despite these limitations, the findings of this study are consistent with previous observations suggesting that intermittent explosive disorder may be related to major mood disorder.[21,22,27] For example, high rates of mood disorders have been reported among euthymic persons,[15] impulsive fire-setters,[7,9,10] and alcoholic violent offenders,[16] all who have comorbid intermittent explosive disorder. Subjects with intermittent explosive disorder have been found to have abnormalities in central serotonergic neurotransmission (e.g., reduced cerebrospinal fluid concentrations of 5-hydroxyindoleacetic acid)[7,9,10,16] and circadian rhythm disturbances[16] similar to those in patients with mood disorder.[28] Also, patients with intermittent explosive disorder have been reported to respond to treatment with antidepressants (e.g., tricyclics, serotonin reuptake

inhibitors) and mood stabilizers (e.g., lithium, carbamazepine, and valproate).[1–4,21,22,27] Moreover, subjects with episodic dyscontrol (some of whom would presumably meet the DSM-IV criteria for intermittent explosive disorder) have been reported to have high rates of depression,[18] and patients with anger attacks have been reported to respond to antidepressants.[25,26] Of note, the response of many subjects with intermittent explosive disorder or episodic dyscontrol to antiepileptic drugs might be explained in part by the mood-stabilizing properties of these drugs.[29]

Indeed, episodic dyscontrol has been distinguished from other forms of aggression in humans by its strong affective component.[19,20] Also, aggression in animals has been classified into 2 major forms: affective, in which there is marked sympathetic arousal; and predatory or nonaffective, which is without significant arousal.[30,31] It might be speculated that intermittent explosive disorder represents a form of pathologic affective aggression in humans or a dysfunctional "fight versus flight" response to environmental danger.

The findings of this study support the hypothesis that intermittent explosive disorder is related to mood disorder, and thus may be a form of affective spectrum disorder—a family of disorders sharing high comorbidity with mood disorders, high familial rates of mood disorder, and response to thymoleptic agents.[32] Moreover, the association of explosive episodes with maniclike symptoms, the high rate of bipolar disorder found in subjects, and the response of subjects' aggressive impulses and acts to mood stabilizers invite the speculation that there may be a particular link between intermittent explosive disorder and bipolar disorder.[21,22]

However, an important theoretical criticism of our findings should be addressed. Specifically, the high rate of mood (and other Axis I) disorders found in our subjects does not resolve the question of whether intermittent explosive disorder is an independent diagnostic entity. On the one hand, intermittent explosive disorder might be a separate disorder that is related to mood disorders. On the other hand, it might be a nonspecific behavior (i.e., rage outbursts) exhibited with elevated frequency by patients with mood disorders—a behavior that declines when the underlying mood disorder is treated with thymoleptics. Further research is clearly needed to clarify the relationships among intermittent explosive disorder, rage outbursts in general, mood disorders, other Axis I disorders, and various Axis II disorders.

In conclusion, intermittent explosive disorder may represent an underdiagnosed disorder of substantial morbidity, probably displaying comorbidity with other major psychiatric disorders, particularly mood disorders. Further investigation into the phenomenology, course, and associated psychopathology of intermittent explosive disorder, as well as studies of its prevalence, biology, and response to both psychosocial and psychopharmacologic treatments, therefore appears warranted.

Drug names: carbamazepine (Tegretol and others), fluoxetine (Prozac), sertraline (Zoloft), venlafaxine (Effexor).

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DISCLOSURE OF OFF-LABEL USAGE

The following agents mentioned in this article are *not* indicated for treatment of intermittent explosive disorder: antipsychotics, fluoxetine, lithium, sertraline, stimulants, valproate, venlafaxine.

Instructions

Psychiatrists may receive 1 hour of Category 1 credit toward the American Medical Association Physician's Recognition Award by reading the article starting on page 203 and correctly answering at least 70% of the questions in the quiz that follows.

1. Read each question carefully and circle the correct corresponding answer on the Registration form.
2. Type or print your full name, address, phone number, and fax number in the spaces provided.
3. Mail the Registration form along with a check, money order, or credit card payment in the amount of $10 to: Physicians Postgraduate Press, Office of CME, P.O. Box 752870, Memphis, TN 38175-2870.
4. For credit to be received, answers must be postmarked by the deadline shown on the CME Registration form. After that date, correct answers to the quiz will be printed in the next issue of the *Journal*.

All replies and results are confidential. Answer sheets, once graded, will not be returned. Unanswered questions will be considered incorrect and so scored. Your exact score can be ascertained by comparing your answers with the correct answers to the quiz, which will be printed in the *Journal* issue after the submission deadline. The Physicians Postgraduate Press Office of Continuing Medical Education will keep only a record of participation, which indicates the completion of the activity and the designated number of Category 1 credit hours that have been awarded.

1. Intermittent explosive disorder:
   a. Is defined in DSM-IV as a personality disorder
   b. Is defined in DSM-IV as an impulse-control disorder not elsewhere classified
   c. Is characterized by premeditated acts of violence
   d. Has received extensive psychiatric study
   e. Is a widely accepted diagnostic entity

2. In this study of persons with intermittent explosive disorder, most persons reported that their explosive episodes were associated with:
   a. Affective symptoms
   b. Property destruction
   c. Assault of another person
   d. Tension or arousal
   e. All of the above

3. The explosive episodes of intermittent explosive disorder can be most reliably distinguished from the hypomanic and manic episodes of bipolar disorder by:
   a. Degree of irritability
   b. Energy elevation
   c. Racing thoughts
   d. Duration of symptoms
   e. Tension

4. In this study of 27 persons with intermittent explosive disorder, the most common co-occurring Axis I psychiatric disorders were:
   a. Mood disorders
   b. Substance use disorders
   c. Anxiety disorders
   d. Eating disorders
   e. Impulse-control disorders

5. In this study of 27 persons with intermittent explosive disorder, the most common psychiatric disorders in first-degree family members were:
   a. Mood disorders
   b. Substance use disorders
   c. Anxiety disorders
   d. Eating disorders
   e. Impulse-control disorders

6. Medications observed to be effective in some of the patients with intermittent explosive disorder in this study included:
   a. Sertraline
   b. Lithium
   c. Valproate
   d. Venlafaxine
   e. All of the above

7. Evidence supporting a relationship between intermittent explosive disorder and mood disorder includes:
   a. The occurrence of affective symptoms during explosive episodes
   b. High rates of mood disorders in persons with intermittent explosive disorder
   c. High rates of mood disorder in family members
   d. Possible response to antidepressants and mood stabilizers
   e. All of the above

Answers to the October 1997 CME quiz

1. c 2. d 3. b 4. e 5. a 6. e 7. e

Circle the one correct answer for each question.

1.	a	b	c	d	e
2.	a	b	c	d	e
3.	a	b	c	d	e
4.	a	b	c	d	e
5.	a	b	c	d	e
6.	a	b	c	d	e
7.	a	b	c	d	e

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Keeping a copy for your files

Retain a copy of your answers and compare them with the correct answers, which will be published after the submission deadline.

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Please evaluate the effectiveness of this CME activity on a scale of 1 to 5 (1 being poor, 5 being excellent).

1. Overall quality of this CME activity ____
2. Content ____
3. Format ____
4. Faculty ____
5. Achievement of educational objectives:
   - A. Enabled the reader to recognize that intermittent explosive disorder is an impulse-control disorder characterized by discrete episodes of failure to resist aggressive impulses that result in assault or property destruction. ____
   - B. Enabled the reader to report that intermittent explosive disorder may be a treatable cause of violent behavior. ____
   - C. Enabled the reader to demonstrate that intermittent explosive disorder may frequently co-occur with other Axis I psychiatric disorders, especially mood disorders. ____
   - D. Enabled the reader to deduce that intermittent explosive disorder may respond to medications with antidepressant or mood-stabilizing properties. ____
6. This CME activity provided a balanced, scientifically rigorous presentation of therapeutic options related to the topic, without commercial bias. ____
7. Please comment on the impact that this CME activity might have on your management of patients.

   _____
   _____
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8. Please offer additional comments and/or suggested topics for future CME activities.

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