

*Treatment in Psychiatry begins with a hypothetical case illustrating a problem in current clinical practice. The authors review current data on prevalence, diagnosis, pathophysiology, and treatment. The article concludes with the authors' treatment recommendations for cases like the one presented.*

# Posttraumatic Stress Disorder Among Military Returnees From Afghanistan and Iraq

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Mr. K, a 38-year-old National Guard soldier, was assessed in an outpatient psychiatric clinic several months after he returned home from a 12-month deployment to the Sunni Triangle in Iraq, where he had his first exposure to combat in his 10 years of National Guard duty. Before deployment, he worked successfully as an automobile salesman, was a happily married father with children ages 10 and 12 years, and was socially outgoing with a large circle of friends and active in civic and church activities.

While in Iraq, he had extensive combat exposure. His platoon was heavily shelled and was ambushed on many occasions, often resulting in death or injury to his buddies. He was a passenger on patrols and convoys in which roadside bombs destroyed vehicles and wounded or killed people with whom he had become close. He was aware that he had killed a number of enemy combatants, and he feared that he may also have been responsible for the deaths of civilian bystanders. He blamed himself for being unable to prevent the death of his best friend, who was shot by a sniper. When asked about the worst moment during his deployment, he readily stated that it occurred when he was unable to intercede, but only to watch helplessly, while a small group of Iraqi women and children were killed in the crossfire during a particularly bloody assault.

Since returning home, he has been anxious, irritable, and on edge most of the time. He has become preoccupied with concerns about the personal safety of his family, keeping a loaded 9-mm pistol with him at all times and under his pillow at night. Sleep has been difficult, and when sleep occurs, it has often been interrupted by vivid nightmares during

which he thrashes about, kicks his wife, or jumps out of bed to turn on the lights. His children complained that he has become so overprotective that he will not let them out of his sight. His wife reported that he has been emotionally distant since his return. She also believed that driving the car had become dangerous when he is a passenger because he has sometimes reached over suddenly to grab the steering wheel because he thinks he has seen a roadside bomb. His friends have wearied of inviting him to social gatherings because he has consistently turned down all invitations to get together. His employer, who has patiently supported him, has reported that his work has suffered dramatically, that he seems preoccupied with his own thoughts and irritable with customers, that he often makes mistakes, and that he has not functioned effectively at the automobile dealership where he was previously a top salesman.

Mr. K acknowledged that he has changed since his deployment. He reported that he sometimes experiences strong surges of fear, panic, guilt, and despair and that at other times he has felt emotionally dead, unable to return the love and warmth of family and friends. Life has become a terrible burden. Although he has not been actively suicidal, he reported that he sometimes thinks everyone would be better off if he had not survived his tour in Iraq.

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### Fear, Stress, and the Returning Veteran

This composite case history presents several kinds of war-zone stressors that have been experienced by returning veterans from Iraq or Afghanistan (1): feeling helpless to alter the course of potentially lethal events; being exposed to severe combat in which buddies were killed or injured; having personally killed enemy combatants and, possibly, innocent bystanders; being exposed to uncontrollable and unpredictable life-threatening attacks such

as ambushes or roadside bombs; experiencing postcombat exposure to the consequences of combat, such as observing or handling the remains of civilians, enemy soldiers, or U.S. and allied personnel; being exposed to the sights, sounds, and smells of dying men and women; and observing refugees, devastated communities, and homes destroyed by combat.

A common denominator for many returnees is the experience of having sustained anticipatory anxiety about potential threats to life and limb at any hour of the day and at any place within the theater of operations. For many, such a sustained combat-ready orientation to the environment results in a pervasive and uncontrollable sense of danger. In Mr. K's case, this has resulted in a preoccupation with concerns about the personal safety of his family, manifested by being hypervigilant, overprotective parenting, grabbing the steering wheel from his wife because of a perceived threat, and keeping a loaded firearm within reach at all times.

Such behavior has been explicated in terms of psychological models such as classic Pavlovian fear conditioning (2), two-factor theory (3), emotional processing theory (4), and other models (5). The traumatic (unconditioned) stimulus—such as the explosion of a roadside bomb, direct assault by insurgents, or a suicide bomb attack—automatically evokes the posttraumatic (unconditioned) emotional response, such as fear, helplessness, and/or horror. The intensity of this emotional reaction provokes avoidant or protective behaviors that reduce the emotional impact of the stimulus. Stimuli reminiscent of such traumatic events (conditioned stimuli)—such as driving along a highway or experiencing a perceived threat to one's family or oneself—evoke similar conditioned responses manifested as fear-induced avoidant and protective behaviors.

Such psychological models can also be explicated within the context of neurocircuitry that mediates the processing of threatening or fearful stimuli. In short, traumatic stimuli activate the amygdala, which in turn produces outputs to the hippocampus, medial prefrontal cortex, locus ceruleus, thalamus, hypothalamus, and dorsal/ventral striatum (6–8). In posttraumatic stress disorder (PTSD), the normal restraint on the amygdala exerted by the medial prefrontal cortex, especially by the anterior cingulate gyrus and orbitofrontal cortex, is severely disrupted. Such disinhibition of the amygdala creates an abnormal psychobiological state of hypervigilance in which innocuous or ambiguous stimuli are more likely to be misinterpreted as threatening. In a war zone, it is adaptive to be hypervigilant. At home it is not.

Fear conditioning models help in understanding many of Mr. K's symptoms, such as intrusive recollections (e.g., nightmares and psychological/physiological reactions to traumatic reminders), avoidant behaviors (e.g., grabbing the steering wheel), and hypervigilance. Other important

alterations in his behavior do not conform to this formulation but are potentially even more disruptive and disturbing to his family. For example, manifestations of emotional numbing or a constricted range of affect have produced a seemingly unbridgeable chasm between his family and himself. Once a warm and expressive spouse and parent, he has isolated himself and become emotionally inaccessible to his wife and children. He has reported feeling numb, wooden, and hollow inside and unable to experience loving feelings or to reciprocate those of his wife and children. He has also cut himself off from his predeployment large circle of friends, who, as a very supportive social network, could potentially have eased his transition back into civilian life. He also has symptoms that jeopardize his capacity to function effectively at work, such as diminished ability to concentrate, irritability, and loss of interest in a job at which he previously excelled. Finally, his symptoms have moral and spiritual components. He has reported feeling that he should have been able to do more to help his comrades and Iraqi civilians and feeling demoralized that his personal courage and sacrifice did not lead to better results. He has reported wondering, on bad days, whether he should have survived when so many others did not.

### Acute Versus Chronic Conditions

Military returnees face several psychological challenges, including the shift away from an adaptive, continuous, combat-ready, hypervigilant state. After many months of deployment to a war zone in which the threat to life and limb is continually reinforced by surprise attacks, direct assaults, deaths of colleagues, inadvertent civilian casualties, and narrow escapes, it can be quite difficult to settle quickly into quiet domesticity. As Mr. K's case illustrates, some military returnees are unable to leave the war zone behind as they appraise their current home environment with respect to danger and safety. Other major adjustments for Mr. K concern the family and domestic environment. He has returned from 12 months in which he experienced intense fellowship within a military unit that became his de facto family. Mutual interdependence, trust, and affection forged in the crucible of ongoing life-threatening combat altered his sense of personal and social identity. The abrupt separation from his military unit and reinsertion into the family environment has been a difficult transition. It must be understood, however, that he was not the only one who had changed. During his yearlong absence, his wife assumed many traditional paternal responsibilities, such as managing the finances and making important decisions concerning home and family. As much as she was delighted that he had returned safely, she was not eager to relinquish the checkbook and other recently acquired prerogatives to her returning warrior. Adjustment at work was also difficult for Mr. K. The intense cohesion of the military unit was far different from the climate at the automobile

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*“Caution the family that the evolution of prodromal symptoms into a disorder may not occur for several years.”*

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**TABLE 1. DSM-IV-TR Diagnostic Criteria for Posttraumatic Stress Disorder (DSM-IV-TR code 309.81)<sup>a</sup>**

- A. The person has been exposed to a traumatic event in which both of the following were present:
1. the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
  2. the person's response involved intense fear, helplessness, or horror. Note: In children, this may be expressed instead by disorganized or agitated behavior
- B. The traumatic event is persistently reexperienced in one (or more) of the following ways:
1. recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. Note: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
  2. recurrent distressing dreams of the event. Note: In children, there may be frightening dreams without recognizable content.
  3. acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated). Note: In young children, trauma-specific reenactment may occur.
  4. intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
  5. physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
- C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:
1. efforts to avoid thoughts, feelings, or conversations associated with the trauma
  2. efforts to avoid activities, places, or people that arouse recollections of the trauma
  3. inability to recall an important aspect of the trauma
  4. markedly diminished interest or participation in significant activities
  5. feeling of detachment or estrangement from others
  6. restricted range of affect (e.g., unable to have loving feelings)
  7. sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)
- D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:
1. difficulty falling or staying asleep
  2. irritability or outbursts of anger
  3. difficulty concentrating
  4. hypervigilance
  5. exaggerated startle response
- E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month.
- F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- Specify if:
- Acute: if duration of symptoms is less than 3 months  
 Chronic: if duration of symptoms is 3 months or more
- Specify if:
- With Delayed Onset: if onset of symptoms is at least 6 months after the stressor.

<sup>a</sup> Reprinted from *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision*. Washington, DC, American Psychiatric Association, 2000. Copyright © 2000. American Psychiatric Association. Used with permission.

dealership. Furthermore, he found it difficult to feel challenged, fulfilled, or stimulated by selling cars because he was aware that only a few months earlier in Iraq, "on-the-job" decisions could affect whether he and his comrades lived or died. He also had difficulty concentrating on work

because his mind was so often preoccupied with vivid re-experiencing of combat scenarios.

Different individuals manage their passage from the war zone to the home front with various degrees of success. Some accomplish this transition within weeks. Others require more time and, possibly, some assistance. A significant minority fail completely. In other words, readjustment is a complicated process with no clear demarcation points and no consistent time course.

Clinicians confronted by patients who have had a difficult reentry need to be aware of the complicated nature of readjustment. On the one hand, they must consider the likelihood that postdeployment difficulties for a particular patient may be par for the course and simply a minor setback in an otherwise normal readjustment trajectory. On the other hand, they must consider the possibility that reentry problems are manifestations of a clinically significant problem (such as anger/aggressive behavior, depression, self-blame, guilt, shame, suicidal thoughts, and alcohol/drug use) or a psychiatric disorder (PTSD, major depressive disorder, other anxiety disorders, or alcohol/drug abuse/dependence). The subsequent discussion is focused on PTSD, with the understanding that the clinician should make a comprehensive assessment that includes inquiry about other posttraumatic disorders that may be expressed alone or in combination with PTSD. Because people with PTSD often hesitate to seek care on their own due to avoidant behavior or because of the stigma associated with seeking mental health care (9–11), the window to PTSD may be provided through the problems expressed by other family members as a result of marital discord, domestic violence, or children's difficulties at school.

## Making the Diagnosis

Table 1 presents the DSM-IV-TR diagnostic criteria for PTSD, including the three main symptom clusters—re-experiencing, avoidance/numbing, and hyperarousal. Clinical experience and most factor analyses (12) suggest four discrete symptom clusters: re-experiencing, avoidance, numbing, and hyperarousal. Mr. K clearly meets diagnostic criteria for PTSD.

The clinician should first obtain a brief trauma history. A few questions about exposure to war-zone trauma should be asked routinely toward the beginning of the clinical interview. Because women have also been deployed for military duty in Iraq and Afghanistan, clinicians should not restrict such questions to men.

After establishing a history of trauma exposure, the next step is to screen for PTSD. The National Center for PTSD recently developed a four-item yes/no screening instrument—the Primary Care PTSD Screen—designed for use by primary care practitioners. The four questions that make up the screen—one concerning each PTSD symptom cluster—are shown in Figure 1. Anyone endorsing three of the four items should receive more elaborate assessment for PTSD. Recent research with the Primary Care PTSD Screen has shown that it has a sensitivity of 78% and

specificity of 87% for PTSD in people who endorse three or more items (13).

Given sufficient evidence either from informal clinical probes or from the Primary Care PTSD Screen that the patient may have PTSD, more formal assessment is warranted. This assessment can be accomplished through a comprehensive diagnostic interview in which each of the 17 PTSD symptoms is evaluated or through use of a structured clinical interview such as the Clinician-Administered PTSD Scale (14) or through a number of well-validated self-report questionnaires such as the PTSD Check List, the PTSD Diagnostic Scale, the Davidson Self-Rating PTSD Scale, and others (15).

### **Risk Factors and Protective Factors**

**Suicidal risk.** Assessment of suicidal risk is important. There is evidence of a positive association between the number of previous traumatic events and the likelihood of a suicide attempt. Furthermore, PTSD is often comorbid with other conditions that are associated with suicidal behavior such as depression, substance use, panic attacks, and severe anxiety (16).

**Danger to others.** There are no data to suggest that PTSD, per se, is associated with harm to others. As in the assessment of any other patient, the clinician should inquire about access to firearms or other lethal weapons, the prominence of aggressive impulses, and the comorbid presence of persecutory delusions.

**Ongoing stressors.** After the euphoria of a safe return from the war zone has worn off, returnees may be faced with new problems (such as changes that occurred at home during their absence) or, more likely, with home-front problems that preceded their deployment to Iraq or Afghanistan. Most typically, such stressors include marital or familial discord but may also extend to workplace or social settings. Ongoing or secondary stressors are risk factors for the development of PTSD. In addition, people with PTSD often have impaired capacity to cope with the ordinary stressors of daily life.

**Risky behaviors.** As with other psychiatric disorders, clinical assessment must address alcohol/drug abuse and dependence, impulsivity, potential for further exposure to violence, risky sexual behavior, and nonadherence to treatment (16).

**Personal characteristics.** People exposed to extremely stressful events exhibit a wide spectrum of posttraumatic reactions, from extreme vulnerability to strong resilience. Indeed, most people exposed to such events never develop PTSD (17). Personal characteristics that appear relevant in this regard include coping skills, interpersonal relatedness, attachment, shame, stigma sensitivity, past trauma history, and motivation for treatment (9, 16).

**Social support.** Social support is a powerful protective factor (18). The protective aspect is influenced by the capacity of an individual to accept or utilize social support when it is made available (19). Acceptance of social support may be especially problematic in PTSD, where symp-

**FIGURE 1. Primary Care PTSD Screen<sup>a</sup>**

In your life, have you ever had any experience that was so frightening, horrible, or upsetting that, *in the past month*, you...

1. Have had nightmares about it or thought about it when you did not want to?
2. Tried hard not to think about it or went out of your way to avoid situations that reminded you of it?
3. Were constantly on guard, watchful, or easily startled?
4. Felt numb or detached from others, activities, or your surroundings?

<sup>a</sup> Screen is positive if patient answers “yes” to any three items.

toms such as avoidance, alienation, and detachment impair the affected individual’s ability to benefit from available marital, family, and social support. This impairment was certainly apparent in the case of Mr. K.

**Comorbidity.** The likelihood that a patient with PTSD will meet diagnostic criteria for at least one other psychiatric disorder is 80% (17). Such individuals are also at higher risk for medical illnesses (20). Therefore, any assessment of overall clinical risk must consider the contribution of comorbid psychiatric and medical disorders. In Mr. K’s case, assessment of depressive symptoms would be a high priority.

### **Special Assessment Issues**

The current wars have unique aspects that should be addressed during assessment. They include stigma, deployment with a National Guard or military reserve unit, military sexual trauma, and survival after serious injury (10, 11).

**Stigma.** It has been shown that recent military returnees experience a strong stigma against disclosure of PTSD and other psychiatric problems. Furthermore, those who are most symptomatic are most sensitive to such stigma and, consequently, least likely to seek mental health treatment (9). It appears that one barrier to seeking treatment for PTSD within a Veterans Affairs or Department of Defense setting is fear that documentation in the medical record of PTSD-related problems might have an adverse effect on advancement in a military career. As a result, many men and women with PTSD and other war-related mental health problems may prefer to seek treatment from civilian psychiatrists where confidentiality can be ensured.

**National Guard or military reserve service.** A large proportion of troops on current deployments are members of the National Guard or military reserve. They are civilians who are neither embedded within full-time military culture nor residing on military bases alongside families who are similarly affected by repeated deployments, and they have much less access to the social sup-

FIGURE 2. Medications for PTSD<sup>a</sup>

Class	Medication	Daily Dose Range (mg)	Indications	Contraindications
Selective Serotonin Reuptake Inhibitors (SSRIs)	Paroxetine <sup>b</sup>	10–60	<ul style="list-style-type: none"> <li>• Reduce B, C, and D symptoms</li> <li>• Produce clinical global improvement</li> <li>• Effective treatment for depression, panic disorder, social phobia, and obsessive-compulsive disorder</li> <li>• Reduce associated symptoms (rage, aggression, impulsivity, suicidal thoughts)</li> </ul>	<ul style="list-style-type: none"> <li>• May produce insomnia, restlessness, nausea, decreased appetite, daytime sedation, nervousness, and anxiety</li> <li>• May produce sexual dysfunction, decreased libido, delayed orgasm or anorgasmia</li> <li>• Clinically significant interactions for people prescribed monoamine oxidase inhibitors (MAOIs)</li> <li>• Significant interactions with hepatic enzymes produce other drug interactions</li> <li>• Concern about increased suicidal risk in children and adolescents</li> </ul>
	Sertraline <sup>b</sup>	50–200		
	Fluoxetine	20–80		
	Citalopram	20–60		
	Fluvoxamine	50–300		
Other Second-Generation Antidepressants	Trazadone	150–600	<ul style="list-style-type: none"> <li>• May reduce B, C, and D symptoms</li> <li>• Effective antidepressants</li> <li>• Trazadone is limited in efficacy by itself but is synergistic with SSRIs and may reduce SSRI-induced insomnia</li> <li>• Preliminary multisite trials indicate that venlafaxine is as effective as SSRIs</li> </ul>	<ul style="list-style-type: none"> <li>• Trazadone may be too sedating, may produce rare priapism</li> <li>• Venlafaxine may exacerbate hypertension</li> <li>• Bupropion may exacerbate seizure disorder</li> <li>• Mirtazepine may cause sedation</li> </ul>
	Venlafaxine	75–100		
	Bupropion	200–450		
	Mirtazepine	15–45		
MAOIs	Phenelzine <sup>b</sup>	15–90	<ul style="list-style-type: none"> <li>• Reduces B symptoms</li> <li>• Produces global improvement</li> <li>• Effective agent for depression, panic disorder, and social phobia</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of hypertensive crisis; patients required to follow a strict dietary regimen</li> <li>• Contraindicated in combination with most other antidepressants, CNS stimulants, and decongestants</li> <li>• Contraindicated in patients with alcohol/substance abuse/dependence</li> <li>• May produce insomnia, hypotension, anticholinergic side effects, and severe liver toxicity</li> </ul>
Tricyclic Antidepressants	Imipramine	150–300	<ul style="list-style-type: none"> <li>• Reduce B symptoms</li> <li>• Produce global improvement</li> <li>• Effective antidepressant and antipanic agents</li> </ul>	<ul style="list-style-type: none"> <li>• Anticholinergic side effects (dry mouth, rapid pulse, blurred vision, constipation)</li> <li>• May produce ventricular arrhythmias</li> <li>• May produce orthostatic hypotension, sedation, or arousal</li> </ul>
	Amitriptyline	150–300		
	Desipramine	100–300		
Antiadrenergic Agents	Prazosin	6–10	<ul style="list-style-type: none"> <li>• Reduce B and D symptoms</li> <li>• Produce global improvement</li> <li>• Prazosin was shown to have marked efficacy for PTSD nightmares and insomnia.</li> </ul>	<ul style="list-style-type: none"> <li>• May produce hypotension or brachycardia</li> <li>• Use cautiously with hypotensive patients.</li> <li>• Titrate prazosin starting with 1 mg at bedtime, and monitor blood pressure.</li> <li>• Propranolol may produce depressive symptoms, psychomotor slowing, or bronchospasm.</li> </ul>
	Propranolol	40–160		
	Clonidine	0.2–0.6		
	Guanfacine	1–3		
Anticonvulsants	Carbamazepine	400–1600	<ul style="list-style-type: none"> <li>• Carbamazepine effective for B and D symptoms</li> <li>• Carbamazepine and valproate effective in bipolar affective disorder</li> <li>• Carbamazepine possibly effective in reducing aggressive behavior</li> <li>• Valproate effective for C and D symptoms</li> <li>• Efficacy of gabapentin, lamotrigine, and topiramate has not been demonstrated in PTSD</li> </ul>	<ul style="list-style-type: none"> <li>• Neurological symptoms, ataxia, drowsiness, low sodium level, leukopenia with carbamazepine</li> <li>• Gastrointestinal problems, sedation, tremor, and thrombocytopenia with valproate</li> <li>• Valproate is teratogenic and should not be used in pregnancy.</li> <li>• Sedation and ataxia with gabapentin</li> <li>• Stevens-Johnson syndrome, rash, and fatigue with lamotrigine</li> <li>• Glaucoma, sedation, dizziness, and ataxia with topiramate</li> </ul>
	Valproate	750–1750		
	Gabapentin	300–3600		
	Lamotrigine	50–400		
	Topiramate	200–400		
Atypical Antipsychotics	Risperidone	4–16	<ul style="list-style-type: none"> <li>• Preliminary data suggest effectiveness against PTSD symptom clusters and aggression.</li> <li>• May have a role as augmentation treatment for partial responders to other agents</li> </ul>	<ul style="list-style-type: none"> <li>• Weight gain with all agents</li> <li>• Risk of type II diabetes with olanzapine</li> </ul>
	Olanzapine	5–20		
	Quetiapine	50–750		

<sup>a</sup> Adapted from Friedman (33) with permission. Symptom categories: B = intrusive recollections; C = avoidance/numbing; D = hyperarousal.

<sup>b</sup> Approved by the U.S. Food and Drug Administration for treatment of PTSD.

port and family services available to full-time active-duty troops. Thus, deployment stress itself (e.g., separation from family, loss of income) may exacerbate the traumatic stress of dangerous service in a war zone. This factor may explain why National Guard and reserve troops in the Persian Gulf War had a higher prevalence of PTSD and depression than active-duty personnel (10, 11). The sudden displacement from a military to a postdeployment domestic environment posed a significant problem for Mr. K.

**Military sexual trauma.** Although military sexual trauma has a higher prevalence among women, the same number of men are affected, despite a lower prevalence, given the substantially higher number of male military personnel. Because group cohesion, interdependence, and mutual support are critically important within a military unit, sexual trauma is a betrayal, a blatant breach of trust and security that can precipitate a sense of apprehension and vulnerability.

**Survival after serious injury.** Most troops wounded in the war zone are surviving their injuries. Thanks to remarkable protective gear, medical advances, and evacuation procedures, 90% of wounded troops now survive serious injuries (21), sometimes with loss of limb(s), eyesight, or other permanent physical disability. Previous research with Vietnam veterans has shown that those wounded in battle are at greatest risk for PTSD (22). As a result, mental health status should be assessed routinely as part of any postinjury rehabilitation.

### Treatment

Effective evidence-based psychotherapeutic and pharmacological treatments are available. Detailed discussion of the empirical treatment literature can be found in recently published practice guidelines for PTSD (16, 23–26).

**Psychotherapeutic interventions.** *Cognitive behavior therapy* (CBT) has been designated the treatment of choice in all PTSD practice guidelines published to date. CBT techniques address the conditioned fear and cognitive distortions associated with PTSD. *Prolonged exposure* is essentially an extinction paradigm in which patients are repetitively exposed to intolerable traumatic memories through imaginal or in vivo experience. Patients are asked to construct narratives about the worst traumatic events they can recall. With repeated therapist-guided exposure to such memories, they experience progressive reduction in distress levels and thereby achieve clinical remission (27, 28). *Cognitive therapy* and *cognitive processing therapy* focus on the trauma-related erroneous automatic thoughts associated with PTSD. Typical erroneous cognitions include perceiving the world as dangerous, seeing oneself as powerless or inadequate, or feeling guilty for outcomes that could not have been prevented. Cognitive restructuring is the technique through which the therapist challenges such distorted beliefs, thereby enabling patients to overcome intolerable trauma-related emotions such as guilt and shame (28, 29).

In practice, both exposure and cognitive therapies have performed very well and with equal efficacy (30). Both are

considered first-line treatments for PTSD (16, 23, 25, 26). A prerequisite for exposure therapy is a clear memory of the traumatic event in order to uncouple the traumatic memory from the intolerable emotions with which it has become associated. For cognitive therapy, the focus is primarily on the automatic and erroneous cognitions that have become associated with traumatic memories. Given the scarcity of trained CBT therapists, neither option may be available. If both options are available, the choice of CBT therapy should probably hinge on whether it is more important for the patient to extinguish intolerable fear-based memories and avoidant behavior or whether the major clinical problem is a disruption in core beliefs about the self or others. In practice, however, exposure therapy has successfully been used to address erroneous cognitions, and cognitive therapy has successfully been used to address fear-based avoidant behavior. These comments are based on my clinical impressions, as we currently lack systematic research on treatment matching in PTSD that would preferentially guide assignment of certain patients to exposure and others to cognitive therapy.

In *eye movement desensitization and reprocessing* (EMDR), patients are instructed to imagine a painful traumatic memory and associated negative cognitions (such as guilt or shame) while visually focusing on the rapid movement of the clinician's finger (31). Although many studies have shown that such eye movements are not needed for EMDR to work (32), evidence-based practice guidelines indicate that EMDR is an effective treatment despite the lack of a satisfactory rationale for its mechanism of action. Questions remain as to whether EMDR is a variant of CBT and whether it is as effective as CBT. Such issues notwithstanding, all clinical guidelines have noted acceptance of EMDR as an evidence-based treatment that can be recommended for PTSD (16, 23, 25, 26).

**Medications.** As shown in Figure 2, a number of medications have been tested for PTSD patients. Selective serotonin inhibitors (SSRIs) have emerged as the treatment of choice. Two SSRIs—sertraline and paroxetine—have been approved by the U.S. Food and Drug Administration as indicated treatments for PTSD. Treatment results with SSRIs are especially exciting because these medications appear to be broad-spectrum agents that ameliorate all three symptom clusters of PTSD. Successful randomized clinical trials have also been conducted with the SSRI fluoxetine, the  $\alpha$ 1-adrenergic antagonist prazosin, tricyclic antidepressants, monoamine oxidase inhibitors, and venlafaxine. Augmentation trials utilizing atypical antipsychotic agents for SSRI nonresponders have also had promising results. Given the complex psychobiology of PTSD, it is likely that other medications such as antiadrenergic agents, anticonvulsants, and a variety of agents currently under investigation may eventually prove more effective than SSRIs (34). Finally, it is important to emphasize that randomized trials with benzodiazepines have had negative results; thus, this class of medication cannot be recommended for PTSD treatment (16, 24, 26, 35).

As Figure 2 shows, the clinician should consider the presence of comorbid disorders (e.g., depression, panic disorder) when making the choice of medication. At the moment, SSRIs are first-line agents. In the case of partial response, my own opinion is that one might consider augmentation with 1) antiadrenergic agents for excessively aroused, hyperactive, or dissociating patients; 2) anticonvulsants for labile, impulsive, and/or aggressive patients; and 3) atypical antipsychotics for fearful, hypervigilant, paranoid, and psychotic patients (33).

**Clinical management.** There are important limitations to the amount of guidance clinicians can derive from available practice guidelines for PTSD (16, 23–26). With few exceptions, most randomized trials have tested only a particular monotherapy, whereas most patients receive two or more treatments concurrently (e.g., psychotherapy plus medication, two or more medications). Furthermore, treatment often results in partial improvement rather than complete remission, especially for patients with complicated cases of PTSD. Many important questions have yet to be tested systematically, including which treatment to select, how to define realistic goals, how to combine various treatments, how to approach treatment for patients with complex clinical pictures and comorbid conditions, how long to continue a trial of a specific treatment, and when to acknowledge clinical failure (36). As new psychotherapeutic and pharmacological approaches are developed, I hope that these key unanswered questions will also be addressed. In the meantime, it is essential that clinicians select evidence-based treatments whenever possible.

In the case of Mr. K, I would consider treatment with CBT, family therapy, and medication. A limiting factor with regard to CBT is the availability of skilled therapists. If, however, such expertise were available, the choice between exposure and cognitive therapy would depend in part on what was more disruptive—his avoidant behavior and fearful preoccupation with perceived environmental danger or his erroneous cognitions about personal inadequacy, helplessness, and guilt. As for medications, I would start with an SSRI. If only a partial remission had been achieved after 6–8 weeks, I would augment the SSRI with other agents, as mentioned earlier. Last, but certainly not least, I would urge either couples or family therapy, given the deleterious impact of PTSD on his wife and children. Although empirical evidence is lacking on the efficacy of such an approach in PTSD, it has been shown to be effective with other disorders such as depression (37).

## Summary

Although most military personnel returning from recent deployments will readjust successfully to life in the United States, a significant minority will exhibit PTSD or some other psychiatric disorder. Practitioners should routinely inquire about war-zone trauma and associated symptoms when conducting psychiatric assessments. Treatment should be initiated as soon as possible, not only to ameliorate PTSD symptoms but also to forestall the later devel-

opment of comorbid psychiatric and/or medical disorders and to prevent interpersonal or vocational functional impairment. If evidence-based practices are utilized, complete remission can be achieved in 30%–50% of cases of PTSD, and partial improvement can be expected with most patients. We can all look forward to future breakthroughs that will improve our capacity to help people with PTSD.

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