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Psychiatric Management of Military-Related PTSD: Focus on Psychopharmacology

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1. Introduction

Military-related posttraumatic stress disorder (PTSD) occurs in a significant minority of veterans and often presents with complex psychiatric co-morbidity (Kessler et al., 1995, Keane and Kaloupek, 1997, Keane and Wolfe, 1990, Forbes et al., 2003, Kulka et al., 1990, Sareen et al., 2004). Twelve month and lifetime prevalence rates of PTSD in the Canadian Regular Forces has been reported as 2.8% and 7.2% respectively (Statistics Canada, 2002). In Canadian veterans pensioned with a medical condition, the 1 month prevalence was 10.3% (Richardson et al., 2006). Other military samples have shown 6 month and lifetime prevalence rates of 11.6 and 20.0% respectively (O'Toole et al., 1996). The large variation in PTSD rates might be a function of the time elapsed between the end of a mission and the start of the mental health evaluation, the nature and frequency of potentially traumatic events within each mission and differences in measurement used i.e. self-report screening tools vs. diagnostic interview.

Patients with PTSD often present first to their primary care clinician with mental health issues, (Del Piccolo et al., 1998) and as such demonstrate increased healthcare service use and costs (Kulka et al., 1990, Ronis et al., 1996, Marshall et al., 1998, Hankin et al., 1999, Kessler et al., 1999, Switzer et al., 1999, Elhai and Ford, 2005, Elhai et al., 2005, Gavrilovic et al., 2005, Richardson et al., 2006). Studies indicate that military-related PTSD is more prone to somatisation (McFarlane et al., 1994) and is associated with more physical health problems (Boscarino, 1997, Boscarino and Chang, 1999, Schnurr and Jankowski, 1999, Schnurr et al., 2000, Sledjeski et al., 2008, Jakupcak et al., 2008, Sareen et al., 2007, Elhai et al., 2007). Evidence also shows that PTSD is often associated with significant comorbidity including major depression, substance abuse, suicidality, (Kessler et al., 1995, Keane and

Kaloupek, 1997, Keane and Wolfe, 1990, Forbes et al., 2003, Kulka et al., 1990, Gradus et al., 2010, Nepon et al., 2010, Sareen et al., 2005) and chronic disability contributing to impaired quality of life (Mills et al., 2006, Richardson et al., 2008 , Richardson et al., 2010).

Military personnel are more likely to be exposed to trauma than the general public (Breslau et al., 1991). Potentially traumatic events can include combat, imprisonment, torture, witnessing atrocities, comrades being wounded or killed, or rescue missions following natural disasters. Peacekeeping missions to Bosnia, Somalia and Rwanda have also involved complex rules of engagement that prevented immediate and active intervention, with a resultant sense of intense vulnerability to attack (Litz et al., 1997b, Litz et al., 1997a, American Psychiatric Association, 2004, Litz, 1996). However military members can also be exposed to non-military specific trauma including rape, motor vehicle accidents, assault and natural disasters.

Risk factors for the development of PTSD have been extensively studied in the military and veteran population. Pre-trauma risk factors for PTSD include a family and/or personal history of psychiatric illness, past trauma including history of childhood abuse (Brewin et al., 2000, Ozer et al., 2003a, Sandweiss et al., 2011). Women are twice as likely to develop PTSD, although men are more likely to be exposed to a traumatic events (Kessler et al., 1995, Breslau et al., 1998). In the military, men still vastly outnumber women, especially in trades that involved combat. Other proposed pre-trauma risk factors from community studies include: younger age, single marital status and lower socioeconomic status (Breslau et al., 2006, Richardson et al., 2007).

Suggested peri-traumatic risk factors include: trauma severity and life threat, (Brewin et al., 2000, Hoge et al., 2004a, Richardson et al., 2007) bodily injury (Koren et al., 2005) and the number of operational deployments (Richardson et al., 2007, Statistics Canada, 2002). The dose-response effect between number of operational deployments was confirmed in a recent re-analysis of PTSD's prevalence among U.S. male Vietnam veterans (Dohrenwend et al., 2006)and in American soldiers deployed in Afghanistan (Hoge et al., 2004b). The emotional response at the time of the trauma, such as feeling unable to control a situation and peritraumatic dissociation, (Brewin et al., 2000, Yehuda, 1999, Ozer et al., 2003a) has also been identified as significant peri-traumatic risk factors. Although more recent studies have cast some doubt on the vailidity of the importance of peri-traumatic dissociation (Candel et al., 2003). More recent studies have demonstrated that pain control in trauma care was significantly associated with a lower risk of PTSD after injury (Holbrook et al., 2010), and both increase heart rate at the time of the trauma (Bryant et al., 2011) and intensive care admission following traumatic injury (O'Donnell et al., 2010) were associated with increased risk of developing PTSD.

Post-traumatic risk factors may include: lack of access to treatment, stigmatization, ongoing life stressors and lack of social support (Brewin et al., 2000, Ozer et al., 2003b, Yehuda et al., 1998). Access to treatment is important, as there is a significant association between soldiers diagnosed with a psychiatric conditions and high attrition rates from the military (Hoge et al., 2002). Deployed members are frequently exposed to long separations from their families and friends and ongoing financial strain might add to the distress a deployed member might face after they return home. Shame and guilt are also posttraumatic risk factors (Yehuda et al., 1998) that military members frequently often face.

Formal psychometric instruments have been developed to assess deployment risk and resiliency factors in relation to mental health outcomes, such as the Deployment Risk and Resilience Inventory (King et al., 2006).

Military members face barriers to rapid, effective treatment for mental illness (Hoge et al., 2004b). Military culture, fear of stigmatization and concerns of career debasement can deter help-seeking , particularly at an early stage when symptoms may be more likely to respond to treatment (Hoge et al., 2002, Elhai et al., 2005, Gavrilovic et al., 2005, McFall et al., 2000, Hoge et al., 2004b). Such delays in accessing treatment may further contribute to the functional impairment often associated with PTSD.

Military-related PTSD responds to both psychotherapeutic and psychopharmacological treatments. (Foa, 2006, Benedek et al., 2009). However, psychotherapy meta-analysis showed that military-related PTSD has the lowest effect size when compared to civilian PTSD (Bradley et al., 2005). Treatment response for PTSD related to a car accident, sexual assault or other more-typically civilian trauma, might not garner the same response for a military-related PTSD. Recent psychotherapy studies have been more encouraging, demonstrating effectiveness in randomized controlled trials including cognitive behavioral psychotherapy, prolonged exposure and cognitive processing therapy (Monson et al., 2006, Nacasch et al., 2010, Tuerk et al., 2011, Morland et al., 2010).

Pharmacological treatment has also demonstrated poor response in military-related PTSD (Schoenfeld et al., 2004a, Shalev et al., 1996, Friedman, 1997). Factors such as chronicity, high comorbidity rates (Friedman, 1997, Shalev et al., 1996, Forbes et al., 2003) and anger that is often present in military-related PTSD (Forbes et al., 2005) have been identified as predictors of poor response. Prior trauma history and past history of psychiatric illness has also been identified as important predictors of treatment outcome (Hourani and Yuan, 1999). Military specific factors, such as the nature of deployment, which often involves months of persistent hyperarousal and hypervigilance in unfamiliar surroundings away from their social support, have also been demonstrated as being a negative predictor in veterans with combat exposure (Foa et al., 2009, King et al., 1995, Creamer and Forbes, 2004). Although a recent Cochrane review demonstrated the effectiveness of pharmacological interventions for PTSD, especially serotonin specific reuptake inhibitors (SSRIs) (Stein et al., 2006), the American Psychiatric Association PTSD Treatment Guideline update concluded that there was insufficient evidence demonstrating the benefit of an SSRI in the veteran population (Benedek et al., 2009).

Due to the complex nature of the clinical presentation of PTSD, from the continuum of adjustment disorders and subthreshold PTSD to 'full-blown' PTSD, this paper aims to confine itself to a general overview of the psychiatric management of military-related PTSD. Despite the challenges researchers face in conducting studies on the effectiveness of military-related PTSD treatment (Institute of Medicine (IOM), 2008), if evidence-based practices are utilized using established guidelines (American Psychiatric Association, 2004, Australian Centre for Post Traumatic Mental Health and National Health and Medical Research Council, 2007) remission can be achieved in 30%–50% of cases of PTSD (Friedman, 2006).

2. Psychiatric management

2.1 Assessment

The presentations of military-related PTSD is often complex. Military members and veterans may initially present indirectly with an emotional, behavioural or addiction concern or an unrelated, less stigmatizing somatic problem such as a physical complaint (Australian Centre for Post Traumatic Mental Health and National Health and Medical Research

Council, 2007). The psychiatric assessment should detail the presenting symptoms and elicit a trauma history, including childhood and adolescent trauma, and exposure to military trauma (combat or peacekeeping operations) (Friedman, 2006). The details of the traumatic event should be limited to information that clarifies the diagnosis as the recounting of an extremely traumatic event is often highly triggering and can lead to significant symptom exacerbation.

Clinically, PTSD presents as four symptom clusters: reexperiencing the traumatic events, avoidance of reminders and emotional numbing (which are grouped together as one symptoms cluster in DSM-IV but are seen as distinct and will likely be denoted as such in DSM-5), and hyperarousal symptoms (American Psychiatric Association, 2004, American Psychiatric Association, 2001). Military members with PTSD relive their trauma in intrusive recollections during the day, including flashbacks, or at night as bad dreams or nightmares. Many complain of both physical and emotional symptoms of anxiety when exposed to reminders of their traumatic event. They may avoid reminders of the trauma and describe emotional numbness or an inability to experience a normal range of emotions with family or friends. They may complain of hyperarousal symptoms such as insomnia, irritability, frequent anger outburst, poor concentration and hypervigilance. According to DSM-IV-TR, acute PTSD has a duration of between 1 and 3 months, whilst chronic PTSD has a duration of more than three months (American Psychiatric Association, 2001).

The clinician can screen for PTSD using available short screening instruments such as the four-item yes/no screening instrument—the Primary Care PTSD Screen—designed for use by primary care practitioners. It has a sensitivity of 78% and specificity of 87% for PTSD in patients who endorse three or more items, (Friedman, 2006) figure 1. Patients who screen positive should be assessed for PTSD using the DSM IV diagnostic criteria, figure 2, or using more elaborative screening instruments such as the Clinician Administered PTSD Scale (CAPS)(Blake et al., 1995) or a self-rating scale such as the PTSD Checklist (Military Version) (Weathers et al., 1993). Veterans may also present with some symptoms of PTSD without meeting the full diagnostic criteria (Zlotnick et al., 2002, Schützwohl and Maercker, 1999, Stein et al., 1997, Charney et al., 1986, Weiss et al., 1992). Even if the full criteria are not met, studies indicate that these individuals may experience significant functional impairment (Olfson et al., 2001). In a study of Canadian veterans, Asmundson and colleagues (Asmundson et al., 2002) demonstrated increased psychopathology in veterans with sub-threshold PTSD when compared to the non-deployed, non-traumatized veterans.

Assessing suicide risk is also critical. The presence of PTSD symptoms increases the possibility of suicidal ideation (Marshall et al., 2001). PTSD often presents with co-morbidities such as depression and addictions (Kessler et al., 1995, Forbes et al., 2003). Studies have estimated that more than 50% of PTSD patients have symptoms of a major depressive disorder (Kessler et al., 1995), but in the veteran population, possibly due to delayed treatment, the percentage may be much higher (Keane and Wolfe, 1990, Southwick et al., 1991, Forbes et al., 2003). Co-morbid depression also significantly increases suicide risk (Kaufman and Charney, 2000). Issues of aggression and anger are also well documented in war veterans, (Lewis, 1990, Forbes et al., 2003, Forbes et al., 2004, Biddle et al., 2002) and during the initial PTSD assessment, male military members may report violent thoughts and aggressive behavior, including homicidal thoughts. Assessing comorbidity, suicidal or homicidal ideations and social support is important in order to determine the need for inpatient treatment or referral for specialist care (American Psychiatric Association, 2004).

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? *Yes/No*
2. Tried hard not to think about it or went out of your way to avoid situations that reminded you of it? *Yes/No*
3. Were constantly on guard, watchful, or easily startled? *Yes/No*
4. Felt numb or detached from others, activities, or your surroundings? *Yes/No*

Screen is positive if patient answers "yes" to any three items.

Fig. 1. Primary Care PTSD Screen

Enquiry should also be made into family functioning, the health of spouse and children, social functioning and vocational issues (American Psychiatric Association, 2004). Family, friends and peers can also provide valuable collateral information as to the current and past functioning of the military member or veteran and eliciting their support at the initial assessment can assist with the treatment process.

2.2 Treatment

Once a firm diagnosis has been established, psychoeducation in group format or individually regarding diagnosis and treatment is critical for both patient and family (American Psychiatric Association, 2004, Turnbull and McFarland, 1996, Van Der Kolk et al., 1996a, Foa et al., 2000). Patient education is a fundamental component of the treatment of as PTSD. Providing psychoeducation can enhance patient satisfaction and improve treatment compliance (Gray et al., 2004). Effective treatment requires that patients understand the treatment plans and return for follow-up assessment and treatment (American Psychiatric Association, 2004). Veterans need information soon after the initial assessment of the different stages of treatment for PTSD (Herman, 1992). The initial phase of treatment focuses on symptom stabilization and the treatment of co-morbid conditions such as depression, addictions and anxiety disorders. Educating patients regarding the phases of treatment reassures those frightened by the notion of psychiatric medication and psychotherapy as well as to set appropriate expectations for treatment. Some patients expect they will be forced to talk about feared traumatic events from the outset and are relieved to know that trauma work comes after their anxiety and distress are more manageable. While symptoms might initially be overwhelming and require pharmacological intervention, early work on mastering anxiety and anger using psychological tools, provides a sense of self- control. Safety in therapy is paramount and only after acute symptoms, particularly suicidality and homicidality, are addressed should the exploration of traumatic events be approached. Once symptoms stabilize, patients are more able to engage in psychotherapy (Van Der Kolk et al., 1996b).

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.

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a Reprinted from *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision.* Washington, DC, American Psychiatric Association, 2000. Copyright © 2000. American Psychiatric Association.

Fig. 2. DSM-IV-TR Diagnostic Criteria for Posttraumatic Stress Disorder (DSM-IV-TR code 309.81)[a]

2.2.1 Psychotherapy

The therapeutic relationship focuses on the "therapeutic use of self", the interpersonal process and the authentic relationship between clinician and client (Carper, 1978). Developing a trusting therapeutic relationship is a challenge and one of paramount importance. Establishing trust in therapy takes time, and so it is often helpful to set the timeframe for therapy soon after the initial assessment. Patients need to be reassured that their clinician does not expect that trust will develop immediately, but requires time to develop. Genuineness and empathy are essential in order to develop an authentic, trusting therapeutic relationship with a veteran. Because of their initial paucity of basic trust, especially of individuals in authority (Glover, 1988.), younger veterans seeking help will often challenge their clinician to determine if the clinician is indeed "genuine."

It is crucial to find a therapist with experience in treating PTSD and knowledgeable on military culture. Both prolonged exposure and cognitive behavioral psychotherapy (CBT) are considered first-line treatment for PTSD. In prolonged exposure, the patient reiterates the trauma during planned treatment sessions, including every sensory experience associated with it, until the memory no longer provokes significant anxiety. With CBT, both the conditioned fear and cognitive distortions associated with PTSD are addressed. Common cognitive distortions include perceiving the world as dangerous, seeing oneself as powerless or inadequate, or feeling guilty for outcomes that could not have been prevented (Friedman, 2006). Most clinical guidelines have also accepted that Eye Movement Desensitization and Reprocessing (EMDR) is an evidence-based treatment for PTSD (American Psychiatric Association, 2004, Friedman, 2006). In EMDR, patients are instructed to imagine painful traumatic memories and associated negative cognitions such as guilt and shame while visually focusing on the rapid movement of the clinician's finger (Friedman, 2006). However dismantling studies have demonstrated that the "eye movement" component is not necessary for the treatment response and that the theoretical bases for its method of action has yet to be determined (Davidson and Parker, 2001). Regardless of the treatment modality, stabilization is critical as the potential danger of initiating "trauma-focused psychotherapy" prior to stabilization may exacerbate pre-existing co-morbid symptoms of depression and substance abuse.

Group based psychotherapy is also commonly used, focusing on psychoeducation, anger, depression, substance use, social and vocational skills, relaxation training as well as other facets of PTSD (American Psychiatric Association, 2004, Foy et al., 2000).

2.2.2 Pharmacological management

As demonstrated in Table 1, a number of medications have been used to treat PTSD. Selective Serotonin Reuptake Inhibitors (SSRIs) have the most empirical evidence for efficacy in the treatment of all three PTSD symptom clusters and are usually considered as a first-line treatment for PTSD (American Psychiatric Association, 2004, National Institute for Clinical Excellence, 2005, Schoenfeld et al., 2004b). SSRIs are also effective agents for the treatment of co-morbid mood and anxiety disorders commonly associated with PTSD. Both paroxetine and sertraline have received FDA approval for the treatment of PTSD in the United States (American Psychiatric Association, 2004). In Canada, only paroxetine has Health Canada approval for the treatment of PTSD.

Second-generation, dual acting antidepressants such as venlafaxine and mirtazepine, are widely used in treating major depression and other anxiety disorders but have less

Class and drug	Adult (mg/Day)[a]	Common side effects
Antidepressant- SSRIs[b]		
Citalopram	20–60	Anxiety, fatigue, nausea, dry mouth, sexual dysfunction
Escitalopram	10-30	Nausea, fatigue, dry mouth, sexual dysfunction
Fluvoxamine	100–250	Anxiety, Nausea, headache, sedation , insomnia, sexual dysfunction
Fluoxetine	20–80	Nausea, insomnia, tremor, sexual dysfunction
Paroxetine	20–60	Anxiety, Nausea, drowsiness, insomnia, sexual dysfunction
Sertraline	50–200	Nausea, insomnia, loose stools, sexual dysfunction
Dual acting antidepressant		
Bupropion (SR or XL)	150–300	Agitation, tremor, dizziness, insomnia, excessive sweating, hypertension
Mirtazapine	15–45	Sedation, increased appetite, weight gain, dry mouth
Venlafaxine	75–375	Nausea, Nervousness, insomnia, somnolence, dizziness, anorexia, sexual dysfunction, hypertension
Adrenergic inhibitors		
Prazosin	2–10	Dizziness, headache, drowsiness, fatigue, risk of syncope
Mood Stabilizers		
Carbamazepine	400–1,000	Dizziness, drowsiness, nausea; risk of aplastic anemia, agranulocytosis
Gabapentin	300–3000	Drowsiness, dizziness, ataxia, fatigue
Lamotrigine	25–400	Dizziness, ataxia, drowsiness, headache; risk of skin rash, Stevens-Johnson syndrome syndrome (rare)
Topiramate	50–400	Drowsiness, dizziness, ataxia, confusion
Valproate	250–2,000	Nausea, gastrointestinal problems, weight change, sedation, tremor, hepatic failure, teratogenic
Antipsychotics		
Aripiprazole	5-10	Restlessness or need to move (akathisia), insomnia, fatigue, blurred vision, constipation.
Olanzapine	5–10	Drowsiness, dizziness, weight gain, dry mouth, akathesia, parkinsonism events; risk of new-onset diabetes mellitus
Quetiapine	50–300	Somnolence, dizziness, postural hypotension
Risperidone	0.5–4	Extrapyramidal symptoms, agitation, anxiety, insomnia, rhinitis

[a] Dosage recommandations repesent clinical consensus.
[b] Selective serotonin reuptake inhibitors

Table 1. Dosage and common side effects of drugs used to treat PTSD (adapted from Current Concepts in Pharmacotherapy for PTSD, Schoenfeld et al., 2004)

empirical data demonstrating their efficacy for the specific treatment of PTSD (Hopwood et al., 2000, Smajkic et al., 2001, Davidson et al., 2003, Chung et al., 2004, Connor et al., 1999). They are often considered as a second-line treatment in patients who have failed to respond to a trial of an SSRI. However, since SSRIs have not demonstrated their efficacy in the treatment of Vietnam or combat-related PTSD thus far, (Schoenfeld et al., 2004b, Friedman et al., 2007) second generation antidepressants may be considered as first-line treatment. The tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAOIs) have some limited data to support their use in the treatment of combat-related PTSD; (Kosten et al., 1991, Davidson et al., 1990) however, they are not commonly used because of their side effect profile and toxicity.

Benzodiazepines are not recommended as monotherapy for the treatment of PTSD, (Friedman, 2006, Braun et al., 1990, Gelpin et al., 1996) but are sometimes used as adjuncts in treating anxiety or insomnia (American Psychiatric Association, 2004). There is a risk of rebound insomnia when a benzodiazepine, used as a hypnotic, is discontinued especially after long-term use (Cooper et al., 2005). The use of benzodiazepines among patients with military-related PTSD who have comorbid substance abuse should be avoided.

2.3 Combining treatment resistant PTSD

In the veteran population, response to treatment might be significantly affected by the severity and chronicity of PTSD (Friedman et al., 2000). Although there is no treatment algorithm for reference, patients who demonstrate a partial response (25-50% improvement) after 8 to 12 weeks of treatment with the first antidepressant trial, augmentation or combination strategies could be considered. Of note though, optimization of monotherapy is critical and close monitoring of potential side effects, especially in the early stages of combination pharmacotherapy, is essential when considering augmentation or combination strategies (Cooper et al., 2005). Common combination treatments include adding mirtazapine or bupropion to an SSRI or venlafaxine. Other augmenting agents for PTSD include atypical antipsychotics and anticonvulsants, although the patient should be fully informed about potential benefits and side effects

The utility of atypical antipsychotics such as risperidone, olanzapine and aripiprazole for the treatment of PTSD in combination with an antidepressant has been demonstrated in numerous studies, including randomized controlled trials (Richardson et al., 2011, Stein et al., 2002, Bartzokis et al., 2001, Hamner et al., 2003, Monnelly et al., 2003). However, a recent study with military-related PTSD did not find that risperidone significantly decreased PTSD symptoms when compared to placebo (Krystal et al., 2011). These agents have been particularly beneficial in managing hyperarousal symptoms such as hypervigilance and irritability as well as for severe dissociation symptoms (Schoenfeld et al., 2004b). There is no established role for the use of conventional antipsychotics in the treatment of PTSD.

Anticonvulsants such as carbamazapine, valproate, topiramate, lamotrigine are increasingly used in combination with antidepressants to treat symptoms of depression, mood instability and impulsivity observed in PTSD (Lipper et al., 1986, Keck et al., 1992, Fesler, 1991, Berlant and Van Kammen, 2002, Hertzberg et al., 1999, Hamner et al., 2001). These agents are generally reserved as third line agents and used in combination with first or second line agents, due to the paucity of evidence for their efficacy.

Antiadrenergic agents such as propranolol and prazosin may have a role as a preventive strategy in the acute traumatic stress reaction (Friedman et al., 1993, Cooper et al., 2005,

Vaiva et al., 2003) or in combination with antidepressants to treat excessive hyperarousal or hyperactive symptoms (Friedman, 2006).
For significant symptoms of insomnia that persist with the use of therapeutic doses of antidepressants, a trial of low-dose mirtazepine (15 mg) or trazodone (50- 100 mg) may be helpful. Alternative non-benzodiazepine hypnotics include zopiclone and zaleplon. Zaleplon may be helpful for patients presenting with middle insomnia resulting from nightmares. Its rapid onset of action and very short half-life (approximately one hour) permits patients to take it in the middle of the night (Samuels, 2005). There is evidence demonstrating the benefits of using prazosin, an adrenergic inhibitors to reduce nightmares in combat veterans (Raskind et al., 2002, Raskind et al., 2003; Miller, 2008; Peterson et al., 2011).

2.3.1 Combining psychotherapy and pharmacotherapy

In clinical practice, despite limited empirical evidence, most veterans with PTSD receive psychotherapy in combination with pharmacotherapy either concurrently (at the same time) or sequentially (one modality after another) (Alderman et al., 2009). There is limited research using combination treatment for PTSD (Canadian Psychiatric Association, 2006, Marshall and Cloitre, 2000). A recent Cochrane systematic review of four clinical trials using SSRI with PE/CBT concluded that not enough evidence is available to support or refute the effectiveness of combined psychological & pharmacotherapy" (Hetrick et al., 2010). Many patients receive psychotherapy and pharmacotherapy either at the same time or one after another. Even though this is generally considered standard clinical practice in our specialty clinics, there is very limited research demonstrating the benefit of combination treatment. A recent Cochrane review published this year, found only four published trials of combination treatment and concluded that there was not sufficient evidence at this time to either support or refute the effectiveness of combined psychological and pharmacotherapy (Hetrick et al., 2010). One study demonstrated the benefits of psychotherapy augmentation in patients who have had a partial response to pharmacotherapy (Rothbaum et al., 2006).

3. Special treatment consideration

3.1 Treatment adherence

Medication compliance is crucial for treatment to be effective. Medication non-compliance may be related to the psychological meaning of taking medication (Fenton and McGlashan, 2000). Veterans may believe that taking medication means they are weak or defective, or they fear that they will become addicted to the medication, (National Institute for Clinical Excellence, 2005) that it will change their personality or lead to job loss. These false beliefs or fears about medications should be explored and confronted prior to starting medication. Providing a safe environment and a positive doctor-patient interaction will help develop trust and may make the veteran more accepting of treatment, improving medication compliance (Weiden and Rao, 2005, Kluft, 2002). Engaging and educating all care providers is essential so the veteran feels safe and comfortable with treatment. Peer social support programs, such as Operational Stress Injury Social Support Program (OSISS) in Canada, may play a valuable role in encouraging medication and treatment compliance. Family involvement may also assist treatment adherence, although this requires further study (Phillips et al., 2001). Education about the potential risk of increased suicidal thoughts

associated with antidepressant medication, particularly at the time of initiation of treatment, should be discussed and reviewed with the patient (National Institute for Clinical Excellence, 2005).

Patients may wish to discontinue their medication once they start to feel better or can no longer tolerate side effects such as weight gain or sexual dysfunction. However, studies have demonstrated the benefits of continuing medication at least up to one year (Richardson et al., 2011). There are no published guidelines on the length of time that patients suffering from anxiety disorders should continue taking their medication; however, existing guidelines for major depression suggest that the medication should be continued for at least six months after symptom remission has been reached (Canadian Psychiatric Association, 2001).

3.2 Dosing considerations

Since veterans with PTSD often present with marked anxiety, they may be very sensitive to the potential heightened anxiety sometimes seen early in treatment with antidepressants. Patients benefit from a "start low, go slow" approach to medication titration, such as starting at ¼ to ½ the usual starting dose and then gradually increasing to a therapeutic level (Cooper et al., 2005, American Psychiatric Association, 1998). While the initiation of medication might be slow and cautious, ultimately the dose should be titrated to full symptom remission at maximum tolerated doses.

4. Conclusion

The presentation of military-related PTSD is often complex. The primary care clinician should consider early referral for specialist military psychological and psychiatric care. Understanding military culture and the nature of military deployments helps the clinician appreciate the challenges veterans' face, which is essential to establishing a trusting therapeutic alliance. Treatment often involves a combination of medications making compliance more challenging. Although remission is not always possible, pharmacological interventions assist with symptom reduction and improve functioning and quality of life. Pharmacological interventions also assist with stabilization and facilitate psychotherapeutic interventions such as trauma-focused psychotherapy.

The treatment of veterans with PTSD often involves a multidisciplinary team of health professionals and it is important that the physician maintain a close interagency liaison with a view to 'shared care'.

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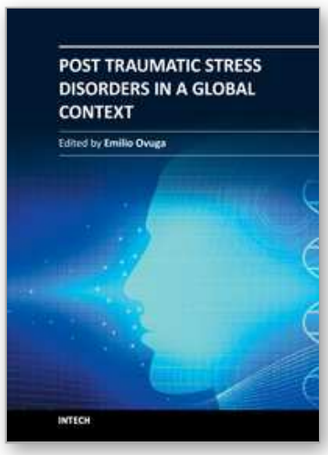

Post Traumatic Stress Disorders in a Global Context
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If, as a health care or social service provider, one was called upon to help someone who has experienced terror in the hands of a hostage taker, an irate and chronically abusive spouse or parent, or a has survived a motor vehicle accident, landslide, earthquake, hurricane or even a massive flood, what would be one's priority response? What would be considered as the most pressing need of the individual requiring care? Whatever the answer to each of these questions, people who have experienced terror, suffer considerable psychological injury. Post-Traumatic Stress Disorder in a Global Context offers some answers to meet the needs of health care and socials service providers in all settings, whether in a hospital emergency room, at the war front, or natural disaster site. The take home message is, after providing emergency care, there is always a pressing need to provide mental health care to all victims of traumatic stress.

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