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Posttraumatic Stress in Older Adults:

When Medical Diagnoses or Treatments Cause Traumatic Stress

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INTRODUCTION

The Condition

The most familiar form of posttraumatic stress disorder (PTSD) occurs in veterans exposed to combat, and it can recur or worsen in the setting of other stressors in late life, including medical illness. This article draws attention to a different and under-appreciated problem of posttraumatic stress symptoms (PTSSs) and PTSD arising from catastrophic medical illness.

In the latest edition of the *Diagnostic and Statistical Manual*,¹ PTSD has 6 components (Table 1).

Risk Factors

Although studies vary as to whether age^{2–4} increases risk for medically induced PTSD, several other factors are consistently associated with increased risk (Box 1).^{2,4–6}

Box 1

Risk factors for medically induced PTSD

- Previous trauma or negative life stressors
- Preexisting psychiatric disorder
- Higher exposure to trauma (eg, longer intensive care unit [ICU] stay; longer duration of cancer treatment)
- Loss of physical functioning as a result of the medical condition
- Pain

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Scope of the Problem

Medically induced PTSD affects the individual, the family, and the health care system. Individuals with PTSD with comorbid depression experience more severe depression,⁷ particularly intrusion symptoms, and all-cause mortality.⁸ Family and professional caregivers may experience emotional distancing, irritability, and aggression from patients with PTSS,⁹ and may also experience increased psychological distress themselves.¹⁰ Older adults with PTSD may have more frequent primary care visits but not receive indicated mental health treatment.¹¹

Clinical Correlations

Many conditions are associated with risk of PTSD or PTSS (Box 2).

Box 2

Conditions associated with medically induced PTSD and PTSD prevalence rates

Diagnoses of life-threatening illness

Cancer, 0%–35%³⁴

Multiple sclerosis, 16%–75%³⁵

Medical events

Myocardial infarction, 5%³⁶–42%^{5,37}

Stroke, 8%–9%³⁸

Delirium, 19%–22%³⁹

Fall, 17%–35%³

Surgical procedures

Cardiac surgery, 17%–20%^{40,41}

Intraoperative awareness, 2%–71%^{42,43}

Medical settings

ICU, 10%–28%⁴⁴

Long-term care, 9%–22%⁴⁵

DIAGNOSTIC STANDARDS AND DILEMMAS

Process of Eliminating Alternative Diagnoses/Problems

Although anxiety and depression may frequently co-occur with catastrophic medical illness, PTSD can be differentiated from these, especially by the presence of experiences described by the patient as traumatic (criterion A) and intrusive thoughts, memories, and dreams of these events (criterion B). Avoidance is a cardinal component of PTSD but may not be

present if the patient is unable to avoid aversive reminders (such as having to return for ongoing health care at the site of the initial diagnosis or subsequent procedures) and even because the body may be a daily reminder (eg, a missing breast). In addition, clinicians should remain alert for PTSS (ie, the presence of symptoms that do not meet criteria for the disorder but still cause clinically significant distress and dysfunction).

Comorbidities

Depression,¹² bipolar disorder,¹³ and dementia can occur with PTSD; PTSD conveys an increased risk for developing dementia.^{14,15} Although difficult medical experiences may lead to PTSD symptoms, older adults with lifetime PTSD have high rates of physical health conditions, such as of gastritis, angina pectoris, and arthritis.¹⁶ Social changes such as retirement and bereavement may be associated with increased thoughts about military experience earlier in their lives.¹⁷

CLINICAL FINDINGS

Source of Data

Patient interview and reports of family and professional caregivers provide the key data on PTSD. Patients are most aware of internal signs and often do not tell others about intrusive symptoms. Caregivers are often more aware of external signs such as anger and agitation.

Examination

A clinical interview focusing on symptoms of PTSD is the foundation of the examination. The most important issue is to ask about the occurrence and impact of catastrophic medical events because PTSSs from these are often overlooked. Begin by simply asking about the recent medical experience. For example: "You were recently hospitalized for heart surgery. How was that for you? Some people find themselves having bad memories or dreams of their heart surgery and recovery. Have you found that? Is there anything that happened you wish to discuss? Do you have any questions about your surgery and hospital stay?"

Recommended Rating Scales

Numerous self-report and interview measures can be used to guide PTSD assessment (Table 2). These instruments have been validated for use in older adults¹⁸ and can be selected from factors such as brevity versus depth. A lower cut score of 42 (rather than 50) is recommended for older adults on the Posttraumatic Stress Disorder Check List.¹⁹

INTERVENTIONS: CURRENT EVIDENCE BASE AND WHAT TO DO WHEN EVIDENCE IS LACKING

Treatment of older adults with PTSD, particularly when medically induced, is weakly supported by age-specific and trigger-specific evidence. Although progress has been made on assessment and treatment protocols in the adult population, similar advances have lagged behind for older adults.²⁰ Therefore, clinical decision making must draw from the literature on younger adults and war or sexual trauma, supplemented with clinical experience.

Many older veterans whom we have seen in our practice at the Veteran's Administration have PTSD related to military trauma. Much of the research available for pharmacologic treatment is based on military-related PTSD or sexual trauma. However, our experience has shown us that elderly patients can have new-onset PTSD symptoms or exacerbation of previously remitted PTSD symptoms in the context of severe medical illness, and may benefit from similar treatment approaches. For example, a 66-year-old Vietnam-era combat veteran had remitted combat PTSD symptoms for many years. He was recently emergently hospitalized for a ventricular tachycardia after his implantable cardioverter defibrillator fired 5 consecutive times while he was alone at the local sanitation station. He sat alone in his vehicle, called 911, and waited to die. Since this retriggering event, the veteran has developed reemerging symptoms of PTSD including hyperarousal, anxiety, nightmares, depressed mood, and ruminative thoughts of death; these thoughts intermix with his earlier trauma and his memories of his cardiac event.

PSYCHOPHARMACOLOGIC TREATMENT

Pharmacologic interventions should target the individual core symptoms of PTSD with attention paid to the medical comorbidities and the risks and benefits of medications. As patients feel threatened, as in the case of the Vietnam veteran during and after his cardiac event, overwhelming fear tends to trigger a typical fight-or-flight response with symptoms of nightmares, insomnia, depressed and anxious mood, and hyperarousal, which is thought to arise from the brain's amygdala. Psychopharmacology in PTSD is focused on restoring balance to the natural inhibitory response of the brain. At present, the US Food and Drug Administration (FDA) has approved only 2 medications for PTSD: the selective serotonin reuptake inhibitors (SSRIs), paroxetine and sertraline. There is currently much research in progress to assess whether these medications are the best available choices for PTSD symptoms. However, first it may be helpful to discuss the use of benzodiazepines, which are widely prescribed for PTSD in medical settings.

Benzodiazepines

Gamma-aminobutyric acid (GABA) is an inhibitory neurotransmitter that, when activated by benzodiazepines (BZDs), decreases neuronal firing and anxiety. Many clinicians immediately prescribe these drugs without concern for their effects. BZDs can be effective in treating symptoms of anxiety disorders including PTSD and are usually safe. However, in the geriatric population, there are many reasons why these drugs are heavily regulated. Even the BZDs with shorter half-lives (such as alprazolam and lorazepam) must be used with caution in older adults, because of the potential for increased half-life caused by slower hepatic metabolism and decreased renal clearance.²¹ Comorbid medical illnesses (cancer, renal and kidney disease, dementia, cardiac disease, vascular disorders) increase risks for adverse drug effects such as gait impairment, falls, confusion, and psychomotor slowing, and intentional or unwitting overuse can also increase risk for motor vehicle and other accidents and unsafe behaviors. Risks of dependency, tolerance, delirium, and withdrawal are also a concern. For all these reasons, BZDs should not be considered drugs of choice in treatment of PTSD, and are best reserved as a last resort.

PREFERRED PHARMACOLOGIC MANAGEMENT OF PTSD SYMPTOMS

Sleep

Patients often report that insomnia is the most distressing PTSD symptom. Lack of sleep can exacerbate other symptoms of PTSD. For these reasons it is useful to treat insomnia first.²² Sleep disturbances in PTSD are thought to be related to hyperarousal and increased adrenergic activity, which may lead to related symptoms such as nightmares, difficulty initiating sleep, and frequent awakenings. Two medications that decrease nightmares and improve sleep quality are prazosin, and trazodone.²³

In elderly populations, prazosin (an alpha-1 adrenergic receptor antagonist that crosses blood-brain barrier) is effective but risks of postural hypotension, dizziness, and priapism should be monitored. Risks can be minimized by starting at the lowest possible dosage and titrating slowly. Low-dose trazodone (with activity at 5HT_{2A}, alpha 1, and H₁ receptors) is an alternative to prazosin and may help with sleep onset. Because of alpha 1 activity, it also can cause postural hypotension and priapism, especially in combination with prazosin, and patients should be monitored closely. Other medications for sleep include tricyclic antidepressants or sedating atypical antipsychotics (quetiapine). However, a careful individualized review of risks versus benefits is necessary when considering these medications in the elderly.

Hyperarousal, Avoidance, and Reexperiencing

If prazosin and or trazodone are ineffective in treating all the symptoms of PTSD, the next step is to consider a trial of an SSRI. The choice of an antidepressant is crucial. Elderly patients are often nonadherent to medications²⁴ for several reasons including worry over adverse side effects, costs of medications, fear of addiction, and lack of understanding of the value of medications. Clinical response improves with adherence so when discussing risks and benefits of individual medications with patients there should be clear communication about the patients' conflicting beliefs and preconceived ideas. Addressing these concerns may improve overall compliance. Open communication related to particular side effects of antidepressants can improve knowledge and expectations about the medication in the patient, and thus improve adherence. For example, choosing paroxetine (Paxil) for an 85-year-old man already taking oxybutynin for bladder incontinence may potentiate anticholinergic symptoms of dry mouth, sedation, confusion, and ataxia, thus causing the patient to stop the medication prematurely or become delirious. Monitoring comorbid medical conditions, prescribed and nonprescribed over-the-counter medications, as well as having specific target symptoms (sleep, appetite, nightmares, and anxiety) can make this process smoother.

Psychosis

Some geriatric patients experience psychotic symptoms associated with PTSD. In our experience, this is more likely to be the case when PTSD occurs in combination with dementia, and dementia can reveal quiescent PTSD from decades earlier. Low-dose quetiapine, risperidone, and aripiprazole may be helpful in reducing or eliminating psychotic

symptoms. The benefits of these medications must be weighed against the risks of side effects such as weight gain, metabolic syndrome, and cardiovascular risk.

As with all psychiatric medications used in older adults, it is important to start low and go slow, but go. More cautious titration usually results in better tolerance. In contrast, excessive caution can result in failure to reach a therapeutic dose of medication and limited treatment benefit as well as loss of patient confidence resulting in noncompliance. Educate the patient that symptoms can take up to 6 weeks to remit and that consistency of dosing and clinician contact are important in achieving the best results. If the first medication yields only partial response, consider increasing the dosage, augmenting with a second agent, or switching to another medication (Table 3).

NONPHARMACOLOGIC TREATMENT

Lifespan Context

In work with older veterans who are experiencing PTSD, often as a resurgence of symptoms late in life, the decision of whether and how to approach the trauma narrative is tempered by the combat trauma having occurred 40 to 60 years ago, being interwoven with that individual's lifespan development, and occurring in the context of multiple vulnerabilities such as chronic illness and, potentially, lower cognitive resources. Our research on older veteran cancer survivors suggests a different approach to PTSD symptoms when they arise out of catastrophic medical events rather than war or sexual trauma. We find that younger old veterans (eg, ages 55–65 years) are more likely than older veterans to experience PTSD arising out of the diagnosis and treatment of cancer, and that those with concurrent combat PTSD symptoms are at increased risk for cancer-related PTSD.²⁵ Older veterans (eg, ages 75–85 years) seem less likely to develop PTSD arising out of medical experience, which may be because of resilience acquired through facing other health and emotional challenges in late life and different normative expectations related to age. These contextual factors influence how we approach the treatment of PTSD symptoms arising out of late-life medical experience.

Eliciting the Trauma Narrative

As with psychopharmacologic treatment, psychotherapy can be used to target specific core symptom groups of PTSD, particularly reexperiencing, numbing, and hyperarousal. Intrusive thoughts, memories, and nightmares are often a signal to patients, families, and health care providers that an individual is having PTSD symptoms that may benefit from treatment. A common starting place in PTSD treatment with psychotherapeutic approaches such as prolonged exposure and cognitive processing therapy (CPT) is a telling and retelling of the trauma story, which individuals often keep to themselves. The telling of the trauma narrative serves several purposes. First, because memory processing during traumatic events is likely to be interrupted, it allows the individual to reconstruct a set of possibly fragmented memories into a coherent narrative from which to build meaning. Second, it desensitizes the individual's psychological and psychophysiological reaction to the memories as a conditioned stimulus that elicits a fear response, in hopes that it will allow the individual to put less energy into avoiding these and the difficulties that can come with the processes of

avoidance. In addition, the process of sharing and allowing another person to bear witness decreases the profound isolation that often accompanies traumatic experience. In contrast with eliciting a combat trauma narrative, our experience is that there is less fragmentation of the memories than commonly occurs in combat and sexual trauma, but, at times, more embarrassment and isolation when the trauma is medical in nature.

Reducing Isolation

The therapeutic process of eliciting and sharing stressful or traumatic medical experiences seems to be useful in reducing intrusive memories and dreams, as well as the numbing symptoms of PTSD, in this case particularly the withdrawal from others. It is our experience that health care providers can become accustomed or sometimes desensitized to the felt responses of patients when performing procedures repeatedly, and that patients, grateful for their care, are reluctant to complain. Because of this, patients may feel alone. For example, some veterans have shared with us that treatments for urologic cancers involved moments of profound embarrassment, fear, or pain (eg, external beam radiation to the prostate, surveillance cystoscopies), all the more so if the veteran has experienced combat trauma as well as childhood sexual trauma.²⁶ In our clinic's cancer support group, a key intervention is for veterans to be able to share their experiences of treatments and surveillance procedures. In this case, companionship with others who are having similar experiences greatly reduces the burden of isolation, and it is hoped that this will extend to other relationships outside the group.

Managing Hyperarousal

In addition, individual or group psychotherapy can target management of PTSD symptoms of hyperarousal. For example, many cancer survivors find that surveillance imaging causes anxious arousal. Again, this can be worsened in the context of combat trauma. For example, a young veteran has shared that the process of being tied into a magnetic resonance imaging (MRI) cage and placed into an MRI scanner can elicit memories of target searching of tunnels in Vietnam. He finds it useful to ask other veterans to accompany him to scan appointments and to use a combination of benzo-diazepine and antihistamine for symptom management. As another example, an older veteran has shared that surveillance scans remind him of hiding beneath floor boards in a French farm house behind German lines, as Germans searched the house. This veteran shared that he approaches scans by clenching his fists and imagining that the MRI sounds are combat sounds, which, for him, provides more mastery than focusing on the present moment. Therefore, in both individual and group psychotherapy it is useful to discuss upcoming medical appointments and procedures, to ensure that the patient is not avoiding these, and also to develop strategies for normalizing and managing any anxiety that may arise. It can also be useful to directly communicate these issues to other health care providers (with the patient's permission) or coach the patient in how to address these with providers (eg, radiology technicians).

Assuaging Worry

However, there are some differences in the psychotherapeutic treatment of PTSD symptoms arising from combat compared with catastrophic or threatening medical experience. The treatment of combat PTSD symptoms focuses on the experiences of combat and how these

have, and are, affecting a person's life. The treatment of medical PTSD symptoms may be less retrospective, involving less narrative reconstruction, but more prospective, involving consideration of disease management going forward. For example, for many, a core psychological component is fear of recurrence.²⁷ In our research we have also found that cancer survivors have other significant worries, including worries about the burden of the disease on family (eg, "Who will take care of my family when I'm gone?"), about long-term side effects (eg, "When will I start to feel better?"), and existential issues (eg, "Am I making the most of the time I have?").²⁷ Therefore psychotherapeutic treatment of cancer-related PTSD is likely to involve strategies for managing worries; for example, through mindfulness or acceptance techniques. As an example, in our cancer support group, if a veteran describes getting a worrisome test result, another veteran often reintroduces the idea of waiting to get the information and then making a plan 1 day at a time.

Working from strengths (resilience developed in facing past traumas) is an important component of treating PTSD in older veterans. Posttraumatic growth, the perception of positive benefits arising from trauma, may moderate the association between PTSD symptoms and mental health outcomes following cardiac surgery.²⁸

EARLY INTERVENTION

PTSD arising out of medical trauma occurs in or near a health care context, providing the opportunity for early intervention by health care providers. Although early trauma debriefing is not advised,²⁹ more recent approaches have combined early intervention in the inpatient setting, supplemented with pharmacotherapy and psychotherapy in the weeks after discharge, a so-called stepped collaborative care approach, to reduce PTSD symptoms.³⁰ Although not tested in older adults, these and other early intervention strategies involving medication³¹ or psychotherapy³² in the acute stage of trauma hold much promise.³³ For example, falling is a common problem in older adults, and is associated with subsequent PTSD symptoms and fear of falling.³ Screening and early intervention in the emergency or hospital setting could potentially prevent the excess morbidity caused by activity restriction, although these outcomes need to be studied.

Knowledge Needs for Health Care Improvement Going Forward

Although the literature has ample reports of PTSD related to catastrophic medical diagnosis and treatments, and considerable data on the treatment of sexual or combat PTSD, it lacks adequate theoretic and outcome studies of treatment of PTSD in older adults, and there is almost no information about special considerations in treating PTSD arising out of medical experience in older adults. Randomized treatment trials of psychopharmacologic and/or psychotherapeutic approaches to reducing PTSD symptoms are needed, but so are qualitative studies that systematically describe the varieties of PTSD symptoms that develop after accidents, injuries, and medical illness in older patients. In addition, further inquiry into the role of the health care team in recognition; early intervention; and, in situations in which medical events and care can traumatize patients, prevention is also badly needed.

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KEY POINTS

- Most older patients adapt after catastrophic medical diagnoses and treatments, but a significant number may develop posttraumatic stress disorder (PTSD) symptoms.
- PTSD symptoms create added burden for the individual, family, and health care system for the patient's recovery.
- Medical-related PTSD may be underdiagnosed by providers who may be unaware that these health problems can lead to PTSD symptoms.
- Treatment research is lacking, but pharmacologic and nonpharmacologic approaches to treatment may be extrapolated and adjusted from the literature focusing on younger adults.
- Additional study is needed.

Table 1

Diagnostic criteria for PTSD

Criterion	Description
(A) Exposure	Event with actual or threatened death, serious injury, or sexual violation by: Directly experiencing the traumatic event Witnessing in person the traumatic event as it occurred to others Learning that the traumatic event occurred to a close family member/friend Experiencing first-hand repeated or extreme exposure to aversive details of the traumatic event
(B) Reexperiencing	Spontaneous memories of the traumatic event, recurrent distressing dreams, dissociative reactions, intense or prolonged psychological distress or physiologic reaction to cues
(C) Avoidance	Avoidance of distressing memories, thoughts, feelings, or external reminders of the event
(D) Negative cognitions and mood	Persistent and distorted negative beliefs about oneself, others, the world, or causes/consequences of traumatic event; persistent negative emotional state, diminished interest, detachment/ estrangement from others; persistent inability to feel positive emotions; inability to remember key aspects of the event
(E) Arousal	Irritable/angry, reckless or self-destructive behavior, hypervigilance, exaggerated startle, problems with concentration or sleep
(F) Duration	More than 1 mo
(G) Functional impairment	Clinically significant distress or impairment in social, occupational, or other important areas of functioning

Table 2

Selected assessment scales

Scale	Number of Items	Description
Primary Care PTSD Screen ⁴⁶	4	Designed to screen for PTSD in primary care and other medical settings, with an introductory sentence to cue respondents to traumatic events
Posttraumatic Check List—Stressor-specific version ⁴⁷	17	Severity rating of 17 PTSD symptoms in relation to a specific stressful experience
Impact of Events Scale - Revised ⁴⁸	22	Severity rating of subjective distress caused by traumatic events

Table 3**Medications for PTSD**

Medication	Target	Notable Side Effects	Geriatric Considerations
First-line Treatment			
Prazosin 1–6 mg PO QHS	Hyperarousal Nightmares	Orthostatic hypotension Dizziness	May only need small dose. (1–3 mg)
Titrate by 1 mg weekly until effect or side effects	Fragmented sleep	Headache Slowed heart rate Priapism if taken with trazodone	Titrate cautiously Consider changing BP medication to prazosin Monitor blood pressure or falls
Trazodone 12.5–100 mg PO QHS		As for prazosin, and also sedation	Affects serotonin and histamine, and blocks alpha- adrenergic receptors Avoid aggressive dosing
Titrate by 12.5–25 mg weekly			
SSRIs in Order of Choice			
Escitalopram 5–10 mg PO daily	Hyperarousal Reexperiencing Depressed mood Sleep disturbance	Sexual side effects Low sodium levels (rare) Usually well tolerated (fewer GI symptoms)	Most effective of the SSRIs Active enantiomer of citalopram; risk for QTC prolongation is lower at dosages of 5–10 mg daily than with equivalent citalopram dose of 20–40 mg Usually well tolerated
Sertraline 12.5–100 mg PO daily		Diarrhea/nausea Sedation Sexual side effects Hyponatremia (rare)	More effective in women If GI symptoms do not remit, consider change in medication If sedated during the day, switch time of medication to QHS
Titrate by 12.5 weekly			
Fluoxetine 5–40 mg PO daily		Diarrhea/nausea Sleep interference Potentiates anticoagulants	Many drug-drug interactions caused by CYP450 enzyme system Long half-life Not usually beneficial in elderly patients with PTSD
Titrate by 5 mg every other week			
SNRIs as Next Line of Treatment in Order of Choice			
Venlafaxine SA 37.5–150 mg PO daily	Depressed mood Avoidance No benefit for insomnia, hyperarousal	Can increase hyperarousal because of noradrenergic activation Hypertension Monitor liver function tests	Reasonable second-line treatment when SSRIs fail SA formula usually better tolerated Discontinuation syndrome: needs slow taper if ineffective
Titrate by 37.5 mg every 7–14 d until effect			
Mirtazapine 7.5–30 mg QHS	Hyperarousal Anxiety Depressed mood Sleep onset	Postural hypotension Dizziness Weight gain Low WBC (rare)	Good choice for cachectic, ill patients if able to tolerate risk of hypotension
Titrate by 7.5 mg weekly			

Medication	Target	Notable Side Effects	Geriatric Considerations
Bupropion SR 100–300 mg PO daily Start 100 mg daily for 7 d then increase to 100 mg BID	Fatigue Depressed mood Avoidance	Can cause greater hyperarousal May interfere with sleep	May use with trazodone and or prazosin No sexual side effects, which may be an advantage to some patients Needs more study for PTSD

Abbreviations: BID, twice a day; BP, blood pressure; CYP450, cytochrome P 450; GI, gastrointestinal; PO, orally; QHS, at bedtime; SNRI, serotonin-norepinephrine reuptake inhibitor; WBC, white blood cell count.