Cancer-Related Post-traumatic Stress (PDQ®): Supportive care - Health Professional Information [NCI]

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Overview

For a number of years, investigators have reported stress or trauma-related symptoms such as avoidant behaviors, intrusive thoughts, and heightened arousal in survivors of cancer.[1,2,3,4] These symptoms resemble those seen in persons who have experienced traumatic events such as military combat, violent personal assault (e.g., rape), natural disasters, or other threats to life and are referred to collectively as post-traumatic stress disorder (PTSD).[5,6,7,8,9,10] Acute stress disorder (ASD) is a Diagnostic and Statistical Manual of Mental Disorders (DSM) condition with a profile similar to that of PTSD but a shorter time to onset, within 4 weeks of a traumatic event. Thus the occurrence of post-traumatic stress (PTS) with trauma-related symptoms in patients with cancer has been under increasing study, influenced by changes in the diagnostic criteria for PTSD in the DSM, fourth edition (DSM-IV).[5] The DSM, third revised edition (DSM-III-R),[11] specifically excluded patients with medical illnesses such as cancer from PTSD. The diagnostic criteria for PTSD in the DSM-IV, text revision (DSM-IV-TR), however, specifically include "being diagnosed with a life-threatening illness" as one example of a traumatic event.[12] Thus, people with histories of cancer can now be evaluated and considered at risk for PTS and related symptoms.

Reviews note that PTS has been studied in a variety of cancers, including melanoma, Hodgkin lymphoma, breast cancer, and mixed cancers. Studies have varied, however, in assessment of patients for the full syndrome of PTSD (i.e., all DSM-IV criteria met) or only some of the PTSD-related symptoms (e.g., intrusive thoughts as measured by the Impact of Event Scale ). Thus, incidence rates have varied accordingly. The incidence of the full syndrome of PTSD (meeting full DSM-IV diagnostic criteria) ranges from 3% to 4% in early-stage patients recently diagnosed to 35% in patients evaluated after treatment. When incidence of PTSD-like symptoms (not meeting the full diagnostic criteria) is measured, the rates are higher, ranging from 20% in patients with early-stage cancer to 80% in those with recurrent cancer.
Factors suggesting which patients might be at increased risk for the development of PTS and PTSD have not been extensively studied; however, one study of women with early-stage breast cancer [13] found an association with PTSD-like symptoms in patients with the following characteristics:

- Younger age.
- Lower income.
- Fewer years of formal education.

Another study of men and women treated with bone marrow transplant [14] found that lower levels of social support and the use of avoidance coping correlated significantly to a higher number of PTSD-like symptoms. One German study [15] that evaluated patients with breast cancer for PTSD and ASD concluded that patients with lifetime PTSD (8.7%) were much more likely to experience cancer-related ASD or PTSD (odds ratio, 14.1).

Although no specific therapies for PTS symptoms in the cancer setting have been developed, treatment modalities used with other people with PTSD can be useful in alleviating distress in cancer patients and survivors.

In this summary, unless otherwise stated, evidence and practice issues as they relate to adults are discussed. The evidence and application to practice related to children may differ significantly from information related to adults. When specific information about the care of children is available, it is summarized under its own heading.

References:

Prevalence

Reviews of the literature [1] note that post-traumatic stress (PTS) has been studied in a variety of cancers, including melanoma, Hodgkin lymphoma, breast cancer, and mixed cancers. The incidence of the full syndrome of post-traumatic stress disorder (PTSD) (meeting the full Diagnostic and Statistical Manual of Mental Disorders, fourth edition [DSM-IV], diagnostic criteria) ranges from 3% to 4% in early-stage patients recently diagnosed to 35% in patients evaluated after treatment. When incidence of PTSD-like symptoms (not meeting the full diagnostic criteria) are measured, the rates are higher, ranging from 20% in patients with early-stage cancer to 80% in those with recurrent cancer.

The earliest research (predating DSM-IV) on PTS among cancer survivors concentrated on the prevalence and characteristics of the disorder in patients who had been or were undergoing treatment, adult and child cancer survivors, and/or their family members. A wide variety of cancer types was studied, including leukemia,[2] breast cancer, and head and neck cancers.[3] Much of the earlier research dealt with survivors of Hodgkin disease, probably because diagnoses at an early age and higher rates of survival resulted in a larger population available for study.[4] These survivors were found to have a particularly high prevalence of intrusive thoughts and avoidance behaviors, even though they were many years posttreatment.[5,6,7] Most of these studies investigated PTSD-like symptoms, rather than the complete mental disorder with all diagnostic criteria.

The first study of cancer patients utilizing the current DSM-IV diagnostic criteria looked at 27 patients (most with breast cancer), all at least 3 years postdiagnosis and no longer receiving any cancer treatments. In this study, a prevalence rate of 4% for current PTSD
and 22% lifetime prevalence was found.[8] Those who met criteria for lifetime prevalence were noted to have higher levels of general psychologic distress, suggesting that individuals with a history of PTSD are at a substantial risk for continued emotional difficulties.

Studies using the Structured Clinical Interview for DSM (SCID) [9] found prevalence rates for PTSD between 3% and 10% in adult cancer patients. Most of these studies looked at women with early-stage breast cancer, evaluated a few months to a few years after their cancer treatments. Similarly, in a prospective study of 115 patients with all stages of breast cancer being treated in a comprehensive cancer center, 4% met the full diagnostic criteria for PTSD; 41% met the subsyndromal criteria for PTSD (experiencing intense fear, helplessness, or horror after being diagnosed with cancer). This set of subsyndromal criteria was a weak predictor of PTSD (12%) but an equally useful predictor of major depressive disorder, global anxiety disorder, and past major depressive disorder, and it may better serve as a marker for elevated distress.[10] In a few studies of patients with bone marrow transplants, slightly higher prevalence rates have been reported, ranging from 5% [11] to 12% to 19% [12] to as high as 35%.[13] The range in prevalence appears to be influenced by time of assessment (higher rates occurring with more time since transplant) and the assessment method used. Studies reporting lower rates typically used a self-report questionnaire,[14] whereas those reporting higher rates [13] used the SCID and evaluated for symptoms at multiple times since diagnosis (i.e., lifetime prevalence).

As an illustration of the distinction between these tools, a German study evaluated patients with breast cancer (n = 127) for PTSD immediately postsurgery and 6 months after the first assessment.[15] The assessments included screening instruments for acute stress disorder (ASD) and PTSD, such as the Impact of Event Scale-Revised (IES-R) and the PTSD Checklist-Civilian (PCL-C). The first assessment also included a semistructured interview using the SCID. On the basis of the SCID, 2.4% of participants met the criteria for mild-to-moderate cancer-related PTSD, and 2.4% were diagnosed with ASD. However, the screening instruments IES-R and PCL-C identified PTSD in 18.5% of participants at the first assessment and in 11.2% to 16.3% of participants at the second assessment. Authors of the study suggest that unlike SCID, the screening instruments IES-R and PCL-C measure diffuse emotional distress and adjustment problems and not precise PTSD symptoms. One of the main differences between symptom-based measures such as PCL-C and an actual SCID-based diagnosis is the dysfunction caused by the symptoms. The symptoms are rather common, but only a very small percentage of people who have the symptoms are disabled by them.

References:
Risk Factors, Protective Factors, and Hypothesized Mechanism

A variety of sociodemographic, disease-related, psychosocial, and psychological variables have been investigated to determine their relationship to post-traumatic stress (PTS) related to cancer. At present, no clear picture emerges about who is at increased risk of developing PTS after diagnosis or treatment of cancer.

Sociodemographic Variables

Few patient characteristics have been shown to predict the occurrence of PTS. High levels of psychologic distress have been correlated with both stress symptoms [1,2,3] and full-syndrome post-traumatic stress disorder (PTSD) diagnoses in adult survivors.[1] In addition, trait anxiety was found to predict post-traumatic symptoms in the parents of survivors of childhood cancer.[4] Women who are survivors of cancer and who have a diagnosis of lifetime PTSD tend to have a history of exposure to trauma.[1,5] Demographic characteristics such as age, sex, and education level at time of diagnosis have not been reliable predictors of stress symptoms.[1,6,7]

Disease-Related Variables

Disease-related variables that have been associated with a higher incidence of PTSD in patients who underwent bone marrow transplant include more advanced disease and a longer hospital stay.[8] Other studies, however, have found no association between time since diagnosis and treatment, severity of disease, or type of cancer treatment received.[1,9,10] The relationship between disease stage and post-traumatic symptoms has not been adequately studied. Most studies have not found an association; however, they typically include a limited range of disease stages or are studying early-stage cancer.[11]

The time since diagnosis and treatment has been shown to correlate with and predict post-traumatic symptoms in survivors of osteogenic sarcoma [2] and Hodgkin lymphoma.[7,12] Specifically, persons who were farther from diagnosis and treatment tended to exhibit fewer symptoms. This effect, however, has not been found in studies of patients with recent recurrences,[13] survivors of breast cancer,[1] or survivors of childhood cancers.[14] Duration of treatment, rather than time since treatment, has been shown to predict stress symptoms in survivors of childhood cancer.[14] (Refer to the PDQ summary on Pediatric Supportive Care for more information.)

The presence of pain and other physical symptoms has been shown to correlate with levels of intrusive thoughts.[2] Cancer recurrence has also been shown to increase the likelihood of stress symptoms in patients.[13]
Psychosocial and Psychological Variables

The experience of past traumatic events appears to be an important psychosocial risk factor associated with PTS symptoms,[5,15,16] as was found in both early-stage [17] and metastatic breast cancer.[18] Previous trauma in combination with recent stressful life events was significantly related to PTS symptoms.[19]

Other psychosocial risk factors such as premorbid psychopathology,[20,21] high levels of general psychologic distress,[22] and dysfunctional coping and attributional styles[15,23,24] have been linked to a risk for PTSD in war veterans, Holocaust survivors, and other disaster victims. In addition, several investigators have linked predisposing genetic factors[25] and other biologic factors (e.g., overly reactive hormonal systems and reduced hippocampal volume) to risk for PTSD.[26,27,28] Among social factors, the quality of the recovery environment, often measured in terms of social support, has been shown to affect risk for PTSD following exposure to combat [20] and burn injury.[29] The effect of threat to life and body integrity has been documented in samples of adults and families [1,4,12] but not children.[14]

Psychological variables that have been related to a higher incidence of PTSD include a history (precancer diagnosis) of PTSD,[5,30] increased use of avoidance coping, and lower levels of social support.[31]

Protective Factors

Greater perceived availability of social support is associated with fewer stress response symptoms in patients with early-stage breast cancer [17,19] and in patients who have undergone bone marrow transplant.[31]

The availability and timeliness of accurate health-related information may also offer protection from stress response symptoms. Women who met the diagnostic criteria for acute stress disorder reported significantly less satisfaction with the communication of their cancer diagnosis.[32] Similarly, women who were unaware of their cancer stage reported higher stress response symptoms than those who were more knowledgeable about the stage of their disease.[33] To the extent that adequacy of information reflects the quality of a patient’s relationship with medical staff, another protective factor may be the quality of those relationships. Difficult patient-staff relationships have been reported to be predictors of stress response symptoms in women with cancer.[34]

Hypothesized Mechanisms

PTSD is precipitated by an intensely distressing event; however, this factor alone is not sufficient to explain the disorder. Not everyone exposed to a traumatic stressor develops the full-blown syndrome (or subsets of symptoms) or qualifies for the diagnosis. Attempts to explain these differences and to predict who is vulnerable have focused on
psychologic (i.e., learning theory), biologic (especially hormonal), and social (i.e., social support) factors. Early studies of Vietnam War veterans suggested a two-factor learning theory to account for trauma-related pathology.\[35,36\] The same theory has also been applied to development of PTSD in patients with cancer.\[37,38,39\]

PTSD symptoms develop as a function of both classical conditioning and instrumental learning. Classical conditioning accounts for the fear responses elicited by various stimuli that are associated with the original traumatic event. Neutral stimuli (e.g., smells, sounds, and visual images) previously paired with the aversive stimuli (e.g., chemotherapy or painful procedures) eventually evoke anxiety, arousal, and fear when presented alone, even after the trauma has ended. Higher order conditioning and stimulus generalization account for the exacerbation and extension of symptoms to additional stimuli. Once established, PTSD symptoms are maintained through instrumental learning, that is, avoidant responses are reinforced because avoidance of the stimuli prevents unpleasant feelings and thoughts.

Estimates from epidemiologic studies suggest that on average, 25% to 33% of individuals who are exposed to traumatic events, including cancer, develop PTSD or subsyndromal PTSD.\[26,40\] Although the disorder appears to be a result of learning processes, many factors have been suggested to explain why one person develops PTSD and another does not.

References:

Assessment of Post-traumatic Stress and Post-traumatic Stress Disorder in the Cancer Setting

Diagnostic Criteria of Post-traumatic Stress Disorder (PTSD)

PTSD was initially characterized as an anxiety disorder that developed in response to a severe trauma in which an individual experienced, witnessed, or was confronted by actual or threatened death, injury, or loss of physical integrity of self or others. The Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV), stipulated for the first time that being diagnosed with a life-threatening illness or learning that one’s child had such an illness qualifies as a stressful event.[1]
In 1994, the application of PTSD to patients with cancer began with the redefinition of the trauma criteria in the DSM-IV to include life-threatening illness.[1] The essential feature of this disorder is the development of characteristic symptoms after exposure to an extreme traumatic stressor.[2] These events elicit responses of intense fear, helplessness, or horror and trigger three clusters of PTSD symptoms. Symptoms from each of the following three clusters must be present for an individual to meet the full criteria for a diagnosis of PTSD:

- Re-experiencing the trauma (nightmares, flashbacks, and intrusive thoughts).
- Persistent avoidance of reminders of the trauma (avoidance of situations, numbing of general responsiveness, and restricted range of affect).
- Persistent increased arousal (sleep difficulties, hypervigilance, and irritability).

These symptoms must last for at least 1 month and cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Symptoms that last for at least 1 day but less than 1 month and that cause significant distress or impairment in social, occupational, or other important areas of functioning might meet the diagnostic criteria for acute stress disorder (ASD). ASD is often a prodromal to PTSD.

**Post-traumatic Stress (PTS) and PTSD in the Cancer Setting**

A timely and careful assessment of patients with cancer is critical to identify the symptoms of cancer-related PTS, to note the deleterious impact of the symptoms on functioning, and to plan interventions targeted at the most distressing symptoms. It is also critical that the assessment distinguishes between the full DSM-IV PTSD syndrome (meets all required diagnostic criteria) and PTS-related symptoms only.

The most difficult aspect of PTS assessment in the cancer setting is the determination of precisely when to evaluate the patient. Diagnosis is complicated because cancer is not an acute or discrete event, but is an experience marked by repeated traumas and indeterminate length. Thus, an individual may exhibit the symptoms of PTS at any point from diagnosis through treatment, to treatment completion and, possibly, to recurrence.[3] Patients such as Holocaust survivors, whose history of victimization causes PTSD or its symptoms, can have the symptoms activated by any number of stimuli encountered during their treatment (e.g., clinical procedures such as being inside magnetic resonance imaging or computed tomography scanners). While such patients may have more difficulty in adjusting to cancer and cancer treatment, their symptomatology is likely to vary greatly according to their circumstances. The relative predominance of specific PTS symptoms may wax and wane throughout the cancer experience and beyond.[1]

The definition in the DSM-IV indicates that although PTSD symptoms usually begin within the first 3 months after trauma, there may be a delay of months or even years before
symptoms appear.[1,4] These findings support the necessity for long-term monitoring of
cancer survivors and their family members.

At least one study found that individuals who have experienced a traumatic event may
exhibit early symptoms without meeting the full criteria for a diagnosis of PTSD.[5]
Nonetheless, the appearance of these early symptoms was found to predict later
development of full PTSD syndrome. These results lend further credence to the need for
both repeated and long-term follow-up of individuals exposed to the trauma of cancer.
(Refer to the PDQ summary on Adjustment to Cancer: Anxiety and Distress for further
information.)

The difficulty in properly diagnosing PTS may be compounded by the overlapping of PTS
symptoms with those of other psychiatric disorders and by the time-related aspects of
normal adjustment. For example, irritability, poor concentration, hypervigilance, excessive
fear, and disturbed sleep are also symptoms of generalized anxiety disorder. Other
arousal and avoidance symptoms are common to PTSD, phobias, and panic disorder, but
loss of interest, sense of a foreshortened future, avoidance of other people, and sleep
impairment might suggest both PTSD and depressive disorders. Even normal reactions
to the diagnosis and treatment of life-threatening disease can consist of responses such as:

• Intrusive thoughts.
• Disassociation and depersonalization.
• Sleep disturbances.
• Heightened arousal.

Therefore, clinicians and researchers must be particularly attuned to the causes,
duration, and severity of PTSD-like symptoms when considering PTSD among several
diagnoses. For instance, in a study of women with breast cancer, 41% reported
experiencing "intense fear, helplessness, or horror" (DSM-IV PTSD diagnostic criterion
A2); however, on further comprehensive diagnostic interview, only 4% met the full PTSD
criteria. Assessment must be able to distinguish between general psychological distress
and symptoms of PTSD.[6]

The accurate diagnosis of PTSD also requires the use of reliable and valid instruments.
Many studies have used the PTSD module of the Structured Clinical Interview for DSM-
III-R-Nonpatient Edition (SCID-NP).[7] This is a clinician-administered, structured clinical
interview that is time intensive and may not be feasible in settings without adequately
trained mental health professionals. However, one study [8] investigated the utility of a
cost-effective screening tool, the PTSD Checklist-Civilian Version (PCL-C).[9] In this
study of 82 women diagnosed with breast cancer assessed 6 to 72 months after cancer
treatment, use of the PCL-C resulted in a sensitivity of .60 and specificity of .99. Other
cutoff scores for the PCL-C that could be used were discussed, depending on the clinical
resources available in specific cancer treatment settings. Most research studies have used the Impact of Event Scale, a self-report of intrusive thoughts;[10] however, it is important to note that this tool can help evaluate PTS symptoms but is not designed to be an assessment procedure for PTSD.

**Comorbidity**

In attempting to diagnose PTSD, it is important to be aware that this disorder is often marked by comorbid psychopathology. Substance abuse, affective disorders, and other anxiety disorders are consistently encountered in samples of people with PTSD.[1,11,12,13] It has been reported that war veterans with PTSD exhibited substantial comorbid pathology that included major depression (32% to 72%), alcohol dependence (65%), drug dependence (40%), social phobia (50%), and obsessive-compulsive disorder (10%).[14] High rates of concurrent disorders have also been documented in other trauma victims. For example, 40% to 42% of disaster survivors with PTSD also qualified for a diagnosis of major depression, and 20% to 42% met the criteria for concurrent generalized anxiety disorder.[14,15] While this has not yet been studied in cancer patients or survivors, the presence of co-occurring psychiatric disorders in Vietnam War veterans and other trauma victims would indicate that cancer clinicians should be alert to identify and treat such related syndromes in their patients.

**The Conceptual Fit of PTS and Cancer**

Conceptual and practical problems can arise in the application of PTS to cancer patients and survivors. The basic concept of an extreme traumatic stressor has been described variously as an event involving direct personal experience that involves actual or threatened death or serious injury.[2] This event can be protracted and continuous but is more frequently a single, time-limited event (e.g., rape, natural disaster). In this context, for the person who has experienced a diagnosis of cancer, the exact nature of the trauma is unclear. Is it the actual diagnosis, aspects of the treatment process, information given about recurrence, negative test results, or some other aspect of the cancer experience? Identifying a discrete stressor within the multiple crises that constitute a cancer experience is much more difficult than it is for other traumas. In one study of patients with breast cancer who underwent autologous bone marrow transplant, more PTSD-like symptoms were reported at the time of initial diagnosis.[16]

Another concern regarding conceptual fit is related to re-experiencing the trauma. DSM-IV PTSD diagnostic criterion B requires persistent re-experiencing of the traumatic event, implying that the patient would first encounter a trauma and then, at a later time, re-experience it in various ways. In a study of women with early-stage breast cancer, however, researchers found that the traumatizing aspects of the cancer experience were receiving the diagnosis and waiting for test results from node dissection.[17] Arguing that
these "information traumas" are future oriented and tend to cause intrusive worry about
the future-not intrusive recollections of past events-the authors questioned whether
cancer fits a conceptual model of PTSD trauma. Re-experiencing the trauma is often
measured in terms of unwanted intrusive thoughts about the traumatic event. The
cognitive processing of a current and ongoing health threat with uncertain outcome might
differ significantly from unwanted intrusive thoughts about a single past event. Some
researchers have argued that not all intrusive thoughts are negative or indicate re-
experiencing a trauma; rather, they might represent appropriate vigilance and attention to
potential symptoms that could result in appropriate help-seeking.[6,18]

Conversely, a unique study assessing the physiological reactivity of patients with breast
cancer to a personalized imagery script of their most stressful experiences with breast
cancer found elevated physiologic responses that were comparable to those of PTSD
patients who had experienced other (noncancer-related) traumas. This finding suggests a
good fit between patients with cancer and the PTSD trauma model, as it shows
comparable symptoms of increased arousal in patients with cancer. Also, in a factor
analytic study designed to confirm the presence of the three broad PTSD symptom
clusters (re-experiencing, avoidance of reminders, and hyperarousal), researchers found
some tentative support for the DSM-IV symptom clusters in a sample of breast cancer
survivors.[19]

In a study of 74 women breast cancer survivors interviewed at 18 months postdiagnosis
via the SCID, three groups were identified: one meeting the full criteria for PTSD (n = 12),
another meeting partial but not full criteria for PTSD (i.e., subsyndromal, n = 5), and a no-
PTSD group (n = 47). Further analyses investigated group differences. Some notable
factors affecting the full-criteria PTSD group compared with the subsyndromal and no-
PTSD groups include the following:[20]

- Significantly higher number of violent traumas (e.g., physical abuse, rape).
- Higher number of anxiety disorders prior to a cancer diagnosis.
- More advanced disease (75% stage III vs. 7% in the subsyndromal group and 6%
in the no-PTSD group).
- More extensive surgeries (83% modified radical mastectomy vs. 47% in the
subsyndromal group and 38% in the no-PTSD group).
- Higher lifetime prevalence of previous PTSD (42% vs. 7% in the subsyndromal
group and 9% in the no-PTSD group).

Further research will be needed to continue to investigate the important question of how
well the conceptual model of PTSD as an anxiety response to a major life trauma fits the
life experience of patients with cancer. Reviews have argued both in favor of [21] and
against [18] the continued use of trauma models for conceptualizing the experience of
cancer. Others have proposed alternate conceptual models.[6,22]

References:


The chronic and sometimes devastating psychologic and interpersonal sequelae of post-traumatic stress disorder (PTSD) necessitates timely and effective treatment of people with this syndrome.[1,2] The avoidant responses associated with PTSD often delay or prevent these individuals from seeking professional assistance. While no specific therapies for PTSD in the cancer setting have been developed, treatment modalities used with other people with PTSD can help alleviate distress in cancer patients and survivors.[3,4]

Most clinicians recommend using a multimodal approach, choosing components to meet the specific needs of each patient and taking into account any concurrent psychiatric disorders such as depression or substance abuse. Multiple modalities are frequently considered in a crisis intervention approach to facilitating adjustment of patients with cancer.

The crisis intervention model comprises a broad range of therapies that can be helpful in the treatment of post-traumatic stress symptoms. The goals of this model are to reduce symptoms and restore patients to their usual levels of functioning. In this model, the therapist often takes an active, directive stance with the patient, focusing on resolving concrete problems, teaching specific coping skills, and providing a safe and supportive environment.[5][Level of evidence: II]

Cognitive-behavioral techniques have proven especially helpful within the crisis intervention setting. Some of these methods include the following:[6]

- Helping the patient understand symptoms.
- Teaching effective coping strategies and stress management techniques (such as relaxation training).
- Restructuring cognitions.
- Providing exposure to opportunities for systematic desensitization of symptoms.

In a single case study, a 10-session cognitive-behavioral intervention for a male cancer patient who was 3 years post-bone marrow transplant and who had PTSD was found to be effective. This study used a combination of cognitive coping strategies, relaxation procedures, relapse prevention, and generalization techniques; benefits were found to be maintained at a 6-month follow-up.[7][Level of evidence: III] Behaviorally oriented approaches to sexual therapy may also be useful when the avoidance manifested by patients is decreased sexual activity and avoidance of intimate situations.
Support groups also appear to benefit people who experience post-traumatic symptoms. In the group setting, such patients can receive emotional support and encounter others with similar experiences and symptoms, thereby validating their own experiences and learning a variety of coping and management strategies.

For patients with particularly distressing or severe symptoms, psychopharmacology may provide an additional means of treatment. Several classes of medications have been used in the treatment of individuals with PTSD.[8,9] (See the table below for pharmacological treatments for PTSD.) For example:

- Tricyclic and monoamine oxidase-inhibitor antidepressants are commonly used, particularly when the symptoms of PTSD are accompanied by depression.
- Selective serotonin reuptake inhibitors such as fluoxetine are effective in reducing the hyperarousal and intrusive symptoms of PTSD.[1]
- Antianxiety medications may help reduce overall arousal and anxiety symptoms. Infrequently, antipsychotic medications may reduce severe intrusive flashbacks.

### Evidence Base for Pharmacological Treatments for PTSD in Noncancer Patients

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosing (mg/day)</th>
<th>Target Symptoms</th>
<th>Evidence Basis</th>
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<tr>
<td><strong>SSRIs</strong></td>
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<td>Sertraline</td>
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RCT = randomized controlled trial; SSRIs = selective serotonin reuptake inhibitors.

a Adapted from Berger et al.[10] and Asnis et al.[11]

b All studies conducted in noncancer patients only. No studies on pharmacological treatments for PTSD conducted in patients with cancer have been reported.

c PTSD symptom clusters are as follows: cluster B, re-experiencing; cluster C, avoidance/numbing; cluster D, hyperarousal.

d Considered first-line treatments for PTSD.

e FDA approved for the treatment of PTSD.

f Used mainly as augmentation to SSRIs or serotonin-potentiating non-SSRIs.
<table>
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<tr>
<th>Medication</th>
<th>Dosing (mg/day)</th>
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<td>50-225</td>
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<td>One RCT</td>
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<td>RCT = randomized controlled trial; SSRIs = selective serotonin reuptake inhibitors.</td>
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</table>

<sup>a</sup> Adapted from Berger et al.[10] and Asnis et al.[11]

<sup>b</sup> All studies conducted in noncancer patients only. No studies on pharmacological treatments for PTSD conducted in patients with cancer have been reported.

<sup>c</sup> PTSD symptom clusters are as follows: cluster B, re-experiencing; cluster C, avoidance/numbing; cluster D, hyperarousal.

<sup>d</sup> Considered first-line treatments for PTSD.

<sup>e</sup> FDA approved for the treatment of PTSD.

<sup>f</sup> Used mainly as augmentation to SSRIs or serotonin-potentiating non-SSRIs.
<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosing (mg/day)</th>
<th>Target Symptoms</th>
<th>Evidence Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prazosin</td>
<td>2-6</td>
<td>All symptom clusters (primary target symptom: nightmares)</td>
<td>Several RCTs</td>
</tr>
</tbody>
</table>

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References:

Current Clinical Trials

Check the list of NCI-supported cancer clinical trials for supportive and palliative care trials about post-traumatic stress disorder that are now accepting participants. The list of trials can be further narrowed by location, drug, intervention, and other criteria.

General information about clinical trials is also available from the NCI website.

Changes to This Summary (01 / 07 / 2015)

The PDQ cancer information summaries are reviewed regularly and updated as new information becomes available. This section describes the latest changes made to this summary as of the date above.

This summary was renamed from Post-traumatic Stress Disorder.

This summary was comprehensively reviewed and extensively revised.

This summary is written and maintained by the PDQ Supportive and Palliative Care Editorial Board, which is editorially independent of NCI. The summary reflects an independent review of the literature and does not represent a policy statement of NCI or NIH. More information about summary policies and the role of the PDQ Editorial Boards in maintaining the PDQ summaries can be found on the About This PDQ Summary and PDQ® - NCI's Comprehensive Cancer Database pages.

About This PDQ Summary

Purpose of This Summary

This PDQ cancer information summary for health professionals provides comprehensive, peer-reviewed, evidence-based information about the diagnostic criteria for and treatment of cancer-related post-traumatic stress and related symptoms. It is intended as a resource to inform and assist clinicians who care for cancer patients. It does not provide formal guidelines or recommendations for making health care decisions.

Reviewers and Updates

This summary is reviewed regularly and updated as necessary by the PDQ Supportive and Palliative Care Editorial Board, which is editorially independent of the National Cancer Institute (NCI). The summary reflects an independent review of the literature and does not represent a policy statement of NCI or the National Institutes of Health (NIH).
Board members review recently published articles each month to determine whether an article should:

- be discussed at a meeting,
- be cited with text, or
- replace or update an existing article that is already cited.

Changes to the summaries are made through a consensus process in which Board members evaluate the strength of the evidence in the published articles and determine how the article should be included in the summary.

The lead reviewers for Cancer-Related Post-traumatic Stress are:

- Lillian M. Nail, PhD, RN, FAAN, CNS (Oregon Health & Science University Cancer Institute)
- Eric E. Prommer, MD (UCLA School of Medicine)

Any comments or questions about the summary content should be submitted to Cancer.gov through the NCI website's Email Us. Do not contact the individual Board Members with questions or comments about the summaries. Board members will not respond to individual inquiries.

Levels of Evidence

Some of the reference citations in this summary are accompanied by a level-of-evidence designation. These designations are intended to help readers assess the strength of the evidence supporting the use of specific interventions or approaches. The PDQ Supportive and Palliative Care Editorial Board uses a formal evidence ranking system in developing its level-of-evidence designations.

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Last Revised: 2015-01-07

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