Patients with cancer: Overview of the clinical features and diagnosis of psychiatric disorders

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INTRODUCTION

Patients with cancer have a high rate of comorbid psychiatric disorders as well as nonspecific psychological distress [1]. The prevalence of comorbid psychiatric disorders and clinically significant psychological distress among patients with cancer may reach as high as 85 percent. However, it is estimated that fewer than 50 percent of cancer patients with psychiatric disorders and distress are identified and referred for appropriate care.

Comorbid psychiatric disorders in patients with cancer may be associated with increased mortality. As an example, a national registry study identified patients with esophageal cancer (n >1600) who underwent surgery and had no prior history of psychiatric disorders [2]. After adjusting for potential confounding factors (eg, age, marital status, and tumor stage and histology), the analyses found that all-cause mortality was 70 percent greater among patients who developed psychiatric disorders, compared with patients who were free of psychiatric disorders (hazard ratio 1.7, 95% CI 1.2-2.3).

This topic reviews the clinical features and diagnosis of psychiatric disorders in patients with cancer. The clinical features and assessment of psychiatric disorders in palliative care are discussed separately, as is the management of psychiatric disorders in cancer patients. (See "Approach to symptom assessment in palliative care", section on 'Psychological and cognitive symptoms' and "Management of psychiatric disorders in patients with cancer".)

PREVALENCE OF PSYCHIATRIC COMORBIDITY

Among patients with cancer, comorbid psychiatric disorders are present in approximately one-third:

- In a meta-analysis of 17 studies in which cancer patients were interviewed (number of patients not reported), the point prevalence of psychiatric disorders (adjustment disorders, anxiety disorders, or depressive disorders) was approximately 38 percent; however, heterogeneity across studies was high [3].

- A meta-analysis of eight observational studies included patients with cancer (n = 1448) who were assessed with validated instruments, and found that at least one psychiatric disorder (adjustment, anxiety, depressive, somatic symptom, or substance use disorders; or posttraumatic stress disorder) was present in 32 percent; heterogeneity across studies was significant [4].

- A subsequent cross-sectional study of patients with cancer who were interviewed (n >2000) found that at least one mental disorder (eg, adjustment, anxiety, depressive, somatic symptom, or substance use disorders) was present in 32 percent [5].

As is the case with other general medical illnesses, cancer patients are more likely to experience psychiatric disorders than the general population [5-8]. A national registry study identified patients with cancer (n >300,000) and individuals without cancer (n >3,000,000), and compared the composite incidence of psychiatric disorders (adjustment, anxiety, depressive, somatic symptom, or substance use disorders) in the two groups [9]. After adjusting for age, sex, and education, the analyses showed that the incidence of psychiatric disorders was higher in cancer patients than controls, and the increased rate of mental disorders was greatest in the first week after diagnosis, such that cancer patients were seven times more likely to have a psychiatric disorder (hazard ratio 6.7, 95% CI 6.1-7.4). The magnitude of the elevated rate subsequently decreased, but the prevalence of psychiatric disorders in cancer patients remained elevated 10 years after diagnosis (hazard ratio 1.1, 95% CI 1.1-1.2).

The prevalence of specific psychiatric disorders in patients with cancer are discussed elsewhere in this topic.

ASSESSMENT OF PSYCHIATRIC SYMPTOMS

For clinicians who are assessing psychiatric symptoms in patients with cancer, one of the initial goals is to determine whether the symptoms represent a [10-12]:

- Normal reaction to a life-threatening illness.
- Psychiatric disorder (either new onset or recurrence).
- Neuropsychiatric manifestation of cancer per se or its treatment – As an example, primary or metastatic brain cancer can alter cognition, emotions, and behavior. In addition, hormone therapy such as corticosteroids can induce disturbances that range along a spectrum from minor symptoms (eg, irritability, affective lability, or insomnia) to episodes of mania or depression, as well as neurocognitive disorders (delirium or reversible dementia). Some chemotherapy agents can also cause neuropsychiatric symptoms. (See "Major adverse effects of systemic glucocorticoids", section on 'Neuropsychiatric effects' and "Patients with cancer: Clinical features and diagnosis of cognitive impairment and delirium", section on 'Pathogenesis'.)

Assessment of patients with cancer for psychiatric symptoms should occur periodically, particularly when changes occur in the patient's cancer (eg, disease progression) or treatment status. Psychiatric symptoms/syndromes can appear, disappear, and reappear, and can be transient or persistent during any phase of cancer (diagnostic work-up, post-diagnosis and pretreatment, treatment, survivorship, recurrence of cancer, and palliative care) [10,12].

ADJUSTMENT DISORDERS AND PSYCHOLOGICAL DISTRESS

For many patients, receiving a cancer diagnosis and undergoing treatment is a stressful life event. In addition, many patients express concerns that stress has "caused" their cancer or that their disease will be exacerbated by further exposure to stress. These concerns can themselves be stressful.

Psychological distress can occur at multiple points throughout the illness: during the diagnostic work-up of a concerning symptom, at the time of the cancer diagnosis, the start of treatment, and at the time of recurrence [13]. Although the initial psychological reaction after a cancer diagnosis can be intense, it usually dissipates.

Emotional distress occurs along a continuum of severity and can manifest with a variety of symptoms, such as fear, apprehension about the future, impaired cognition, worry about roles, and thoughts of death; physical symptoms such as impaired sleep and appetite may also be present [1,13,14]. In addition, the severity of distress can fluctuate at different times. Although

distress is a symptom rather than a psychiatric disorder, persistent significant distress is a criterion for diagnosing adjustment disorder, as well as depressive disorders and anxiety disorders [15]. Distress can occur in family members as well as patients with cancer [16].

Clinically significant distress in patients with cancer is associated with poor outcomes, such as nonadherence to cancer treatment and monitoring, and with poorer quality of life [1]. In addition, distress is associated with decreased survival in many studies [17]. As an example, a nationally representative survey included individuals with a history of cancer (n = 295); after adjusting for potential confounding factors (eg, age, sex, and smoking history), the analyses found that cancer mortality was two times greater among individuals with distress than individuals not distressed (hazard ratio 2.0, 95% CI 1.1-3.7) [18].

Prevalence — The point prevalence of adjustment disorders in patients with cancer is approximately 10 to 20 percent, and nonspecific clinically significant psychological distress occurs in approximately 40 percent [13]:

- In a meta-analysis of 23 studies in which patients with cancer were interviewed (number of patients not reported), the estimated point prevalence of adjustment disorder was 19 percent [3]. However, heterogeneity across studies was high.
- A subsequent study of patients with cancer who were interviewed (n >2000) found that adjustment disorders were present in 11 percent [5].
- Clinically significant psychological distress is observed in roughly 25 to 50 percent of cancer patients [1,13,14,19-21].

Risk factors for emotional distress include [1]:

- History of psychiatric disorders
- History of physical or sexual abuse
- Cognitive impairment
- Communication barriers
- Uncontrolled symptoms of cancer such as pain
- Severe comorbid general medical illness
- Conflicts with caregiver/family
- Living alone
- Financial problems

Screening — We suggest that clinicians screen all patients with cancer for psychosocial distress using a self-report validated instrument and that screening be implemented with services in

place to ensure follow-up for diagnosis and treatment. Screening should occur when the initial diagnosis of cancer is made and periodically thereafter as clinically indicated, especially with changes in cancer or treatment status (eg, recurrence or progression of cancer). This approach is viewed as best practice in cancer care and is consistent with practice guidelines from the American Society of Clinical Oncology, National Comprehensive Cancer Network, American College of Surgeons, and Institute of Medicine [1,22]. The rationale for screening is that distress is serious, prevalent, under-recognized, and treatable, and that standardized, valid screening tools are available.

We typically use the self-administered Distress Thermometer (figure 1) to screen for distress in patients with cancer. This tool assesses the patient's level of distress during the past week with a single Likert (visual analogue) scale ranging from 0 (no distress) to 10 (extreme distress) [23]; a score ≥4 suggests clinically significant distress [1,24-29]. The scale is often paired with a checklist of potential stressors, such as practical problems (eg, transportation or occupational difficulties), family problems (eg, conflicts with partner), emotional problems (eg, worry and sadness), and physical problems (eg, fatigue and pain) [25]. The Distress Thermometer is widely used and recommended due to its brevity and ease of use, and is available in more than 20 languages [30-33]. Although a 2007 pooled analysis of nine studies with nearly 1500 cancer patients concluded that detection of distress with the Distress Thermometer was modest [34], subsequent studies have found its psychometric properties were satisfactory and concluded that the instrument is valid [26,28,29,35-38]. As an example, a prospective study of 462 patients with a variety of cancers found that sensitivity was 87 percent, specificity was 73 percent, and positive predictive value was 53 percent [27].

In screening for distress, reasonable alternatives to the Distress Thermometer include the self-report, two-item Patient Health Questionnaire (PHQ-2) (table 1) and the self-report, seven-item Generalized Anxiety Disorder scale (table 2) [22]. Other instruments that have been used include the self-report, four-item Patient Health Questionnaire (PHQ-4), which assesses anxiety (feeling nervous or anxious) and depression (dysphoria and anhedonia) [39].

Uptake of routine screening for psychosocial distress in patients with cancer is often limited [32]. Although patients with cancer largely accept screening, multiple studies indicate that approximately 25 to 50 percent of patients are not screened [30,32,40]. Barriers to screening include staff turnover and lack of staff who are trained to conduct screening, as well as lack of time for the different steps involved in screening: administering and scoring the screening tool, interpreting the results, referring patients to psychiatric services, following up with patients to ensuring their distress is being managed, documenting the process, and auditing medical records for quality improvement [14,30,40,41].

Several strategies have been suggested to increase the rate of screening for psychosocial distress [42]. These include securing the support ("buy-in") of hospital/clinic administrators and clinical staff to provide funding for staff training and protected time to implement the different processes involved in screening (eg, patients referrals and follow-up) [14,30,40,41]. Other interventions include providing educational materials and reminders, forming a dyad of clinicians to collaborate in screening cancer patients, and establishing an oncology interdisciplinary committee (eg, oncologist, social worker, nurse, and psychiatrist) to develop screening policies and oversee screening efforts [30,40-42]. Another approach that appears readily acceptable to patients is to screen for distress via mobile (smart) telephones [39]. Nevertheless, studies of interventions to improve the rate of screening and referral for psychiatric services suggest that the interventions are generally not beneficial [42].

Screening for psychological distress in patients with cancer appears to facilitate communication between patients and clinicians, but other benefits have not been clearly demonstrated due to mixed results across randomized trials [14]. However, in larger studies and studies that provided adequate staff training, screening led to better outcomes [43]. As an example, one trial (n >700 cancer patients) compared full screening (multiple assessments for distress, anxiety, and depression) plus referrals for psychosocial services as needed, with minimal screening using the Distress Thermometer plus usual care [19]. At the three-month follow-up, clinically significant distress was present in fewer patients who received full screening/referrals, compared with patients who received minimal screening plus usual care (36 versus 49 percent).

Additional information about screening patients with cancer specifically for depressive disorders and anxiety disorders is discussed elsewhere. (See "Patients with cancer: Clinical features, assessment, and diagnosis of unipolar depressive disorders", section on 'Screening' and "Patients with cancer: Clinical features, screening, and diagnosis of anxiety disorders", section on 'Screening'.)

Diagnosis — Adjustment disorders are frequently diagnosed in patients with cancer, if psychological distress or behavioral symptoms do not meet criteria for another specific disorder, such as major depression or generalized anxiety disorder.

According to the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR), the diagnosis of adjustment disorder requires each of the following criteria [15]:

- Emotional (eg, depression and/or anxiety) or behavioral symptoms (eg, avoiding needles) that occur in response to an identifiable stressor (eg, receiving the diagnosis of cancer) within three months of onset of the stressor.

- Symptoms are clinically significant as evidenced by at least one of the following:
  - Significant distress that exceeds what would be expected given the nature of the stressor
  - Impaired social or occupational functioning
- The syndrome does not meet criteria for another psychiatric disorder (eg, unipolar major depression or generalized anxiety disorder).
- The syndrome does not represent an exacerbation of a preexisting psychiatric disorder.
- The syndrome does not represent bereavement.
- After the stressor and its consequences have ended, the syndrome resolves within six months.

In making the diagnosis of adjustment disorder, clinicians can specify whether the disorder occurs with:

- Anxiety – Nervousness or worry
- Depressed mood – Sadness, tearfulness, or hopelessness
- Mixed anxiety and depressed mood – Both anxiety and depression
- Disturbance of conduct – Behavioral symptoms
- Mixed disturbance of emotions and conduct – Both emotional and behavioral symptoms

ANXIETY DISORDERS

Anxiety disorders are common in patients with cancer. (See "Patients with cancer: Clinical features, screening, and diagnosis of anxiety disorders".)

DEPRESSIVE DISORDERS

Depressive disorders (table 3A-B) are common in patients with cancer. (See "Patients with cancer: Clinical features, assessment, and diagnosis of unipolar depressive disorders".)

NEUROCOGNITIVE SYMPTOMS AND DISORDERS

Cognitive impairment and delirium are common in patients with cancer. (See "Patients with cancer: Clinical features and diagnosis of cognitive impairment and delirium".)

OTHER PSYCHIATRIC SYMPTOMS AND DISORDERS

Fatigue — Cancer related fatigue is defined as “a distressing, persistent, subjective sense of physical, emotional and/or cognitive tiredness or exhaustion related to cancer or cancer treatment that is not proportional to recent activity and interferes with usual functioning” [44]. Fatigue is a common problem in patients with cancer who are undergoing active treatment, and many survivors will have persistent fatigue for several years posttreatment. The prevalence, time course, screening, and assessment of fatigue in patients with cancer is discussed separately. (See "Cancer-related fatigue: Prevalence, screening, and clinical assessment".)

If the cancer-related fatigue occurs in conjunction with other depressive symptoms like dysphoria, anhedonia, and suicidal ideation or behavior, fatigue may be a symptom of a treatable depressive syndrome, such as major depression (table 3A) or minor depression (table 3B). (See "Patients with cancer: Clinical features, assessment, and diagnosis of unipolar depressive disorders".)

If cancer patients with comorbid depression manifest fatigue that is due to the cancer or its treatment rather than the depressive syndrome, treating depression can nevertheless improve quality of life, even if the fatigue persists.

Grief — Anticipatory grief is typically used to describe the natural grief response that terminally ill patients (and their loved ones) experience prior to death [45]. The symptoms include sadness, anxiety, anger, disbelief, and yearning for past health and/or a more hopeful future. Anticipatory grief symptoms can begin far before death and may arise when cancer is first diagnosed. In addition, anticipatory grief is triggered by current losses such as independent functioning, as well as the anticipated loss of life. Anticipation and psychological preparation for death may facilitate adaptation to one’s impending death.

Additional information about the clinical features of grief, including anticipatory grief, is discussed separately. (See "Bereavement and grief in adults: Clinical features".)

Insomnia — Patients with cancer frequently experience insomnia symptoms consisting of transient difficulty initiating or maintaining sleep [46], including individuals who never had

sleep problems previously. In addition, cancer patients often develop insomnia syndromes consisting of repeated insomnia symptoms (eg, more than three times/week for at least one month) that cause distress or impair functioning.

Among patients receiving active treatment for cancer, as well as cancer survivors who have finished treatment, insomnia occurs in up to 60 percent [47]. As an example, one prospective study of patients (n = 856) with a variety of cancer types who were scheduled for a curative surgical procedure found that at baseline, insomnia syndromes were present in approximately 30 percent, and that insomnia symptoms were present in another 30 percent, for a total prevalence of insomnia of approximately 60 percent in this population [48]. The prevalence of insomnia syndromes appears to be higher than that in the general population.

The etiology of insomnia in patients with cancer often involves multiple predisposing, precipitating, and perpetuating factors [46]. These include symptoms from the cancer per se (eg, tumors that produce steroids or cause pain or dyspnea), as well as cancer treatments (eg, corticosteroids). Other potential causes of insomnia include stress and anxiety associated with a cancer diagnosis or treatment, poor sleep hygiene (table 4), and cognitive distortions about sleep (eg, the belief that lack of sleep will always affect daytime functioning or that fatigue warrants more sleep).

Insomnia symptoms in patients with cancer can persist after treatments for cancer have ended. An 18-month, prospective observational study of cancer patients found that among patients with insomnia syndromes at baseline (n = 240), the syndrome persisted for the duration of follow-up in 38 percent [48].

For clinicians who want to screen for insomnia, the Edmonton Symptom Assessment Scale (revised version) (table 5) and the Epworth Sleepiness Scale (calculator 1) are recommended by the practice guideline from the Canadian Partnership Against Cancer [46]. The Edmonton Symptom Assessment Scale consists of 10 items, one of which assesses sleep; the scale is completed by the patient, caregiver, or clinician. The Epworth Sleepiness Scale is an eight-item self-report scale that assesses only sleep. However, most clinicians involved in the psychosocial care of cancer survivors do not screen for insomnia. In addition, there are no high-quality studies that demonstrate routine screening of all cancer patients for insomnia improves outcomes.

Assessment and diagnosis of insomnia in the context of general medical settings and palliative care are discussed separately. (See "Risk factors, comorbidities, and consequences of insomnia in adults" and "Evaluation and diagnosis of insomnia in adults" and "Insomnia in palliative care".)

Pain — Cancer pain is a symptom that affects most aspects of a person's life, including physical functioning, activities of daily living, mental health, and social interactions. Living with uncontrolled pain can be associated with depressive and anxiety symptoms that may resolve once the pain is better controlled. In addition, cancer patients with poorly-controlled pain often manifest full-blown comorbid depressive and anxiety disorders. (See "Patients with cancer: Clinical features, assessment, and diagnosis of unipolar depressive disorders" and "Patients with cancer: Clinical features, screening, and diagnosis of anxiety disorders".)

Personality traits and disorders — Patients with cancer may manifest problematic personality traits or personality disorders that lead to disruptive behavior [49,50]. As an example, patients with a tendency toward excessive control, demanding behavior, and unrealistic expectations about their care may become angry when treatment does not proceed as they want and complain to the clinician's supervisor or to licensing agencies or threaten to sue. In addition, patients with antisocial personality disorder often lack empathy and may menace clinicians, which can necessitate hospital security intervention or legal action. Patients with difficult personality traits and disorders can evoke strong emotions in clinicians, including feelings of betrayal, guilt, anger, and intimidation.

We suggest that oncology teams identify problematic patient behaviors and collectively discuss how best to set limits, in an effort to foster a therapeutic alliance with the patient and preserve the treatment plan. The clinical features and diagnosis of personality disorders are discussed separately. (See "Approaches to the therapeutic relationship in patients with personality disorders" and "Overview of personality disorders".)

Posttraumatic stress disorder — Many patients diagnosed with and living with a life-threatening form of cancer experience symptoms of acute stress disorder or posttraumatic stress disorder (PTSD) (table 6), but far fewer patients meet criteria for these syndromes. As an example, prospective structured clinical interviews of 166 patients with breast cancer found that after cancer was diagnosed but before treatment commenced, at least one stress disorder symptom was present in 83 percent of patients (mean number of symptoms was three); at the one-year follow-up, at least one symptom was present in 57 percent (mean number of symptoms was two) [51]. By contrast, the full syndrome of acute stress disorder or PTSD was present at the time of the cancer diagnosis and the follow-up in 4 and 2 percent of patients, which appears to be comparable to the rate in the general population.

Some studies of cancer patients, using self-report screening measures, have found relatively high rates of comorbid PTSD (approximately 25 to 30 percent) [52,53]. However, these rates are likely to be inflated because most screening measures are not validated for generating a diagnosis.

If patients with cancer present with PTSD symptoms or the full syndrome, clinicians should not assume that the cancer is the sole traumatic event [53]. Evaluations should include questions about trauma that may have preceded the cancer diagnosis.

In addition to prior history of trauma, other risk factors for PTSD in cancer patients include younger age, less social support, perceiving the cancer as menacing, problematic interactions with treatment staff, and advanced disease [12].

Additional information about the epidemiology, clinical features, assessment, and diagnosis of acute stress disorder and PTSD are discussed separately. (See "Acute stress disorder in adults: Epidemiology, clinical features, assessment, and diagnosis" and "Posttraumatic stress disorder in adults: Epidemiology, pathophysiology, clinical features, assessment, and diagnosis".)

Psychotic disorders — Patients with psychotic disorders such as schizophrenia (table 7), who are hospitalized in an oncology setting, may evoke fear in the staff. In addition, these patients may also be difficult to assess (eg, noncommunicative) and nonadherent with treatment [54]. Psychiatric consultation is recommended to clarify the diagnosis and review treatment. If cancer patients with serious mental illness such as schizophrenia receive appropriate support, including collaboration from outpatient mental health staff who have an established treatment relationship with the patient, these patients can engage in and adhere to multimodal cancer care, often with successful health outcomes [55].

Psychotic symptoms (eg, delusions or hallucinations) may develop in cancer patients with no pre-existing psychotic disorder, secondary to chemotherapy agents, including [12,56]:

- Asparaginase
- Chlorambucil
- Corticosteroids
- Hydroxyurea
- Ifosfamide
- Interferon-alpha
- Interleukin-2
- Procarbazine

General information about psychosis is discussed separately. (See "Psychosis in adults: Epidemiology, clinical manifestations, and diagnostic evaluation".)

Sexual dysfunction — Sexual health issues can affect patients with cancer who need to adjust to the diagnosis or are living with cancer as a chronic illness, as well as cancer survivors. It is important to discuss sexual health with both the patient and partner and to provide a referral as

indicated for sexual health support. (See "Overview of sexual dysfunction in male cancer survivors" and "Overview of sexual dysfunction in female cancer survivors" and "Overview of psychosocial issues in the adult cancer survivor", section on 'Sexual dysfunction'.)

Symptoms and disorders in cancer survivors — Although most cancer patients cope well as they transition to long-term survivorship, some patients who survive cancer may experience psychosocial problems, even many years after their cancer treatment. (See "Overview of psychosocial issues in the adult cancer survivor" and "Overview of cancer survivorship care for primary care and oncology providers".)

Symptoms and disorders in family caregivers — Over 50 percent of the care received by patients with cancer is provided by family caregivers, and caregiving is associated with stress and psychiatric problems. As an example, a small cross-sectional study of family caregivers (n = 91) for patients with cancer found that the mental health of caregivers was worse than population norms, and that 62 percent of caregivers reported that their emotional well-being had worsened as a result of caregiving. In addition, a review found that anxiety and depression each occurred in approximately 40 percent of caregivers, and that sleep disturbances and fatigue were common as well [57].

Although there are potential benefits to caregiving, lack of preparation and support for this task may leave caregivers vulnerable to psychiatric disturbances [58,59]. These disturbances in caregivers can adversely affect the emotional well-being of patients, and distress in patients can in turn negatively affect the well-being of caregivers [57].

SUICIDE

Suicide attempts and deaths occur more often in patients with cancer than the general population [60,61]. However, it is difficult to identify patients at increased risk of suicidality because instruments that screen for suicidal behavior lack adequate sensitivity and specificity to accurately predict suicide attempts and deaths in cancer care settings [62].

The subsections below discuss suicidal ideation and behavior in patients with cancer. Additional information about suicidality in general is discussed separately. (See "Suicidal ideation and behavior in adults".)

Suicidal ideation — A review found that the prevalence of suicidal ideation in patients with cancer varied greatly across 11 studies, but that the best evidence suggested that thoughts of suicide occurred in roughly 10 to 15 percent of patients, which the authors concluded was

comparable to the prevalence in the general population [60]. In a subsequent study of 211 patients with cancer, suicidal ideation was reported by 6 percent [63].

Many patients with cancer are screened for depressive disorders with the self-report, nine-item Patient Health Questionnaire (PHQ-9) (table 8) [64,65], and this instrument includes one item that asks patients whether they have had thoughts that they would be better off dead or thoughts of self-harm.

Patients with cancer who report that they would be better off dead or had thoughts of self-harm should be interviewed to assess the nature of these thoughts and to ascertain whether suicidal ideation is truly present, because these patients may be preoccupied with thoughts of dying from cancer instead of suicide. A retrospective study included outpatients with cancer (n = 330) who completed the PHQ-9 and indicated that they had had thoughts that they would be better off dead or thoughts of self-harm for at least several days [66]. In a subsequent interview about these thoughts, patients responded as follows:

- Denied thoughts of suicide – 32 percent of patients
- Acknowledged thoughts of being better off dead (passive suicidal ideation) – 39 percent
- Endorsed thoughts of wanting to commit suicide (active suicidal ideation) – 29 percent

Patients with passive or active suicidal ideation as well as patients with depressive and anxiety symptoms should be promptly assessed for risk of suicidal behavior; patients with active suicidal ideation typically require emergent referral to a mental health clinician for evaluation or to a hospital emergency department. (See "Suicidal ideation and behavior in adults", section on 'Patient evaluation'.)

Attempts — The risk of suicide attempts is increased in patients with cancer. A national registry study identified patients with a first diagnosis of primary cancer (n >12,000; age 15 to 30 years) and examined suicide attempts in analyses that controlled for age, sex, and prior psychiatric history [61]. In the first year after diagnosis, suicide attempts occurred more than twice as often in the cancer patients than the cancer-free individuals (relative risk 2.3, 95% CI 1.5-3.3), and the elevated risk persisted between one and five years after the diagnosis (relative risk 1.7, 95% CI 1.3-2.3).

Deaths — Numerous studies have established that patients diagnosed with cancer are at increased risk of dying by suicide compared with the general population [60,61,67-72]. As an example, in a registry study of more than 16 million patients who received an initial diagnosis of

cancer and were followed for up to 16 years, the suicide risk was 26 percent greater in patients with cancer than the general population (standardized mortality ratio 1.26) [73].

Although the risk of suicide in patients with cancer is elevated relative to the general population, the absolute risk is small. In a registry study of more than 1,000,000 cancer cases, suicide occurred in 0.01 percent per year [74].

Depression near the end of life may cause the patient to seek assistance in hastening death, which is discussed separately. (See "Medical aid in dying: Ethical and legal issues".)

Risk factors — The following factors are associated with completed suicide in patients with cancer:

- **Sex (males)** – Both males and females with cancer are at increased risk of suicide, but most studies suggest that males commit suicide more often than females [60,62,68,71,73]. As an example, a national registry study found that the rate of suicide among male cancer patients was 70 percent greater than that in the general population (standardized mortality ratio 1.7, 95% CI 1.6-1.9), whereas the rate in females was only 40 percent greater (standardized mortality ratio 1.4, 95% CI 1.3-1.5) [75]. Another registry study found that the rate of suicide was six times greater in male patients than females [74]. These findings are consistent with the observation in the general population that suicide occurs more often in males.

- **Time since diagnosis (soon afterwards)** – Most studies indicate that suicide is most likely to occur soon (eg, within the first week) after cancer is diagnosed, and that the risk declines over time [60-62,68,69,73,76]. As an example, a national registry study found that compared with cancer-free individuals, patients with cancer were [67]:

  - 13 times more likely to commit suicide within one week of receiving the diagnosis (relative risk 12.6, 95% CI 8.6-17.8)
  - 5 times more likely within 12 weeks (relative risk 4.8, 95% CI 4.0-5.8)
  - 3 times more likely within one year (relative risk 3.1, 95% CI 2.7-3.5)
  - 2 times more likely after one year (relative risk 1.8, 95% CI 1.6-2.0)

  Eventually (eg, after one to five years), the risk of suicide in patients with cancer appears to decrease to the point that it is comparable to the rate in the general population [61,69,73].

In one national registry study (n >900,000 cancer patients), the risk of suicide was lower in patients who lived more than 10 years after receiving their diagnosis, relative to the general population (relative risk 0.74, 95% CI 0.65-0.83) [68]. This reduced risk in patients may reflect successful adaptation, or that most of the vulnerable patients have already committed suicide or died from cancer.

- **Psychiatric disorders** – Multiple studies indicate that the risk of suicide in patients with cancer is increased in those with comorbid psychiatric disorders (eg, major depression and panic disorder) [60,61].

  However, many patients with cancer who commit suicide do not have psychiatric disorders. As an example, a retrospective study of more than 1400 cancer patients who died by suicide found that 77 percent did not have a mental disorder [77].

- **Impaired physical functioning** – Poor physical functioning is associated with an increased risk of suicide in patients with cancer [60,70].

- **Poor prognosis** – Among patients with cancer, the risk of suicide is greater in patients with a poor prognosis than patients with a good prognosis [60,67,68,72]. Nevertheless, the rate of suicide may be elevated even in cancer patients with a good prognosis, compared with the rate in cancer-free individuals [69].

Other factors less frequently associated with suicide include lack of social support and poor pain control [60].

INFORMATION FOR PATIENTS

UpToDate offers two types of patient education materials, “The Basics” and “Beyond the Basics.” The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on “patient info” and the keyword(s) of interest.)

- (See "Patient education: Antisocial personality disorder (The Basics)".)
- (See "Patient education: Borderline personality disorder (The Basics)".)
- (See "Patient education: Post-traumatic stress disorder (The Basics)".)
- (See "Patient education: Schizophrenia (The Basics)".)

SUMMARY

- Psychiatric disorders that develop in patients with cancer may be associated with increased mortality. (See 'Introduction' above.)

- Among patients with cancer, psychiatric comorbidity is present in at least one-third, and the prevalence of mental disorders is greater in cancer patients than the general population. (See 'Prevalence of psychiatric comorbidity' above.)

- For clinicians who are assessing psychiatric symptoms in patients with cancer, one of the initial goals is to determine whether the symptoms represent a normal response, a psychiatric disorder (either new onset or recurrence), or a manifestation of cancer itself or its treatment. (See 'Assessment of psychiatric symptoms' above.)

- The point prevalence of adjustment disorders in patients with cancer is approximately 10 to 20 percent, and nonspecific clinically significant psychological distress occurs in at least 25 percent. The diagnosis of adjustment disorder requires each of the following criteria:

  - Clinically significant emotional or behavioral symptoms that occur in response to an identifiable stressor within three months of onset of the stressor.

  - The syndrome does not meet criteria for another psychiatric disorder, does not represent an exacerbation of a preexisting psychiatric disorder, and does not represent bereavement.

  - After the stressor and its consequences have ended, the syndrome resolves within six months.

  (See 'Adjustment disorders and psychological distress' above.)

- Anxiety disorders, depressive disorders (table 3A-B), cognitive impairment, and delirium are common in patients with cancer. (See "Patients with cancer: Clinical features, screening, and diagnosis of anxiety disorders" and "Patients with cancer: Clinical features, assessment, and diagnosis of unipolar depressive disorders" and "Patients with cancer: Clinical features and diagnosis of cognitive impairment and delirium".)

- Patients with cancer may present with other psychiatric symptoms and disorders, including fatigue, grief, insomnia, pain, personality traits and disorders, posttraumatic stress disorder, psychotic disorders, and sexual dysfunction. (See 'Other psychiatric symptoms and disorders' above.)

- The risk of suicide attempts and deaths is increased in patients with cancer. Nevertheless, the absolute risk of completed suicide is small. (See 'Suicide' above.)

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