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Depression, Chronic Pain, and Suicide by Overdose: On the Edge

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Abstract

Comorbid conditions that pose risks for suicide, especially depression, are prevalent in people living with chronic pain. The true numbers of failed attempts and successful suicides are unknown and may never be determined. Yet risk factors for suicidal ideation are so high in this population that it must be assumed that some proportion of those who die of drug overdoses might have intended to end their lives, not just temporarily relieve their pain. The purpose of this manuscript is to highlight to clinicians the important association between chronic pain and intentional self-harm. Contemporary understanding of the epidemiology of depression and suicide and the relationship to chronic pain will be reviewed. Recommendations for the use of validated and practical screening tools as part of a comprehensive clinical assessment and for approaches to suicide prevention and interventions as crucial components of chronic pain management are outlined.

Keywords

depression; chronic pain; opioid-related overdose; suicide

Introduction

There has been a dramatic increase in fatal poisonings involving opioid analgesics. For example the number of opioid related fatal poisonings tripled from 4,000 to 13,800 deaths from 1999 through 2006 and approximately 40% of all deaths by poisoning in 2006 involved opioids [1]. This increase in opioid related fatal poisonings mirrors the increase in availability of prescription opioids [2, 3]. Results from the 2010 Substance Abuse and Mental Health Services Administration (SAMHSA) Drug Abuse Warning Network report [4] revealed that excluding alcohol, tobacco, sedatives and psychotropic drugs, opioid analgesics have become the common class of drugs associated with “unintentional”, fatal poisoning, greater than heroin and cocaine. What proportion of these cases is related to intentional death by suicide is undetermined due to misclassification [5, 6] or lack of classification [7] of intent. However, between 2005 and 2007, emergency department visits for drug-related suicide attempts increased by 30% and there was an overall 55% increase in opioid related attempts [4],

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Disclosure
During the past 3 years, Martin Cheatle, PhD, has served as a consultant to Ameritox.

The growing concern regarding opioid addiction and fatal poisonings involving opioids has obscured a potentially equally clinically relevant problem of intentional self-harm by overdose.

Depression and Chronic Pain

Ms. D is a 45-year-old mother of 2 who was actively involved in the care of her family, volunteered in the community, and worked full time as a para-educator at the local high school. She had no history of mood disorder and had never sought mental-health treatment when she began to note left big toe pain. An evaluation by a podiatrist led to a tarsal tunnel release, which provided no relief. Instead, her pain spread to both feet. She entered pain management and underwent a series of bilateral L4 lumbar sympathetic blocks, which also failed to reduce her pain. She was subsequently seen by a host of medical specialists, locally and at tertiary facilities. Numerous nerve conduction studies revealed progressive peripheral neuropathies of an unspecified etiology. Further testing included a painful nerve biopsy, which yielded equivocal results. Meanwhile, her symptoms progressed to include both hands, and, though formerly an avid reader, she was unable to even turn pages in a book. She ceased working and relinquished her volunteer positions. Her spouse assumed all of her household duties, causing her to feel inadequate and guilty. Her treatment included a polypharmacy of opioids, antiepileptic drugs, antidepressants, hypnotics to induce sleep and, eventually, a 4-month stay in a residential pain program. Despite these efforts, her pain worsened, her function deteriorated, and her mood plummeted. She began experiencing panic episodes and deepening depression, confiding to one of her treating physicians her fears of becoming wheelchair bound. She admitted to daily suicidal ideation and hoarding her prescribed medications, stating, “If I can’t take it anymore, I *will* kill myself”.

The experiences of Ms. D are not unusual; depression is a common comorbidity with chronic pain. The true prevalence of depression in chronic pain varies with the population sampled (e.g., community, primary care, pain clinics, sports medicine, orthopedic clinics). Bair et al [8] performed a Medline data base search examining depression or depressive disorders in pain and found that mean prevalence rates of concomitant major depression in pain patients was 52% in pain clinics; 38% in psychiatric clinics; 56% in orthopedic or rheumatology clinics; 85% in dental clinics addressing chronic facial pain; 13% in gynecologic clinics focusing on chronic pelvic pain; 18% in population-based settings, and 27% in primary care clinics. The authors also identified several studies revealing a strong association between depression and pain, demonstrating that pain patients are more likely to be depressed than patients without pain and that the presence of pain may obscure the detection and treatment of depression, thus placing these vulnerable patients at heightened risk for suicide [9–11]. In a recent study by Miller and Cano [12], a community sample of 1,179 adults was surveyed via computer-assisted telephone interview. The prevalence of chronic pain was found to be 21.9% with approximately 35% of those with pain experiencing comorbid depression, representing 7.7% of the entire sample.

Pain and Suicide

In our society, suicide is considered to be an aberrant act attributable to severe mental illness, impulsivity, or despair. For many individuals, committing suicide is a way out of a situation or problem that is causing extreme suffering. As of 2007, suicide was the 11th leading cause of death across all ages [13]. Annually in the United States, over 34,000 people die by suicide, and more than 376,000 individuals are seen in emergency departments with self-inflicted injuries [13]. Of suicide decedents who were tested for substances, one third were positive for alcohol at the time of death, and 1 in 5 showed evidence of opiates, including heroin and prescription opioids [14]. Risk factors for suicide in the general

population include family history of suicide; family history of childhood abuse; previous suicide attempts; history of mental disorders, particularly depression; history of alcohol and substance abuse; impulsive or aggressive behaviors; isolation; losses such as work, family, or social roles; physical illness; easy access to lethal methods; and resistance to seek help for fear of stigma related to having a mental disorder [15]. A recent qualitative research study [16] evaluated the thought processes of 52 psychiatric inpatients admitted due to suicidal ideation. Seven discrete response types were identified to the question: Why suicide? Suicide was seen as: an easy way out, a permanent solution to a problem, related to hopelessness, related to relationship issues, the only option, self oriented, and *an escape from (emotional) pain*.

In examining the various risk factors for suicide, it is apparent that many of these factors can be associated with living in chronic pain. As noted, many pain patients experience concomitant depression and some have histories of alcohol and substance abuse. These patients experience hopelessness and isolation due to their pain, and they endure many losses, including their work and family roles. In some cases, through indicated and appropriate prescribing of opioids, vulnerable patients receive access to potentially lethal medications (i.e., opioids). Furthermore, patients with chronic pain tend to resist seeking psychiatric or psychological care for fear their pain symptoms will be minimized or considered reflective of an underlying mental disorder. Studies have revealed high rates of suicidal ideation and suicide attempts in patients suffering from chronic pain [17–25]. A survey by Hitchcock et al [17] found that 50% of chronic pain patients had serious thoughts of committing suicide due to their pain disorder. Fishbain [20] reviewed a number of studies assessing suicidal ideation and behaviors in patients with chronic pain and found that specific pain-related risk factors, such as pain severity and severe comorbidity, including depression, accounted for the heightened rates of suicidal behavior in chronic pain patients. However, it is difficult to generalize from many of these studies due to problematic methodological weaknesses and limitations including retrospective or cross sectional design, case studies, selection bias (treatment seeking samples), and not adjusting for psychiatric co-morbidities. As suggested by Tang and Crane (25) future research should focus on prospective interventional designs targeting risk reduction in the most vulnerable pain patients.

Smith et al [21] assessed suicidal behavior in a cross-sectional design of 153 adults with noncancer chronic pain referred to a pain center for evaluation and treatment. Based on clinical interview and completion of a depression inventory, the authors discovered that 19% reported current passive suicidal ideation, 13% had active thoughts, 5% currently had a plan for suicide, and 5% reported a previous suicide attempt. Of note is that drug overdose was the most commonly reported plan for committing suicide (75%). The authors concluded that this study reinforced the need for routine monitoring of suicidal behavior in patients suffering from chronic pain, particularly in patients with family history of suicide and especially in *patients receiving potentially lethal medications* (e.g., prescription opioids). Braden and Sullivan [22] evaluated whether noncancer chronic pain conditions were independently associated with increased risk for suicidal behavior. They analyzed the National Comorbidity Survey Replication data (n=5,692) and discovered that in an unadjusted logistic analysis the presence of any pain condition was associated with lifetime and 12-month suicidal ideation, plan, and attempt. After controlling for various medical, mental-health, and demographic covariants the presence of any pain condition remained significantly associated with lifetime suicidal ideation (odds ratio 1.4; 95% confidence interval, 1.1,1.8).. Using the same national comorbidity survey replication, Ilgen et al [23] evaluated the relationship between four measures of pain (headache, back and neck, and other nonarthritic pain) and a summary score of these measures and similarly found that pain was a potentially independent risk factor for suicidal ideation (associated with head pain-

OR 1.9, 95% CI: 1.2, 3.0 and the pain summary score - OR 1.2, 95% CI:1.0, 1.4) and suicide attempt (head pain- OR 2.3, 95% CI:1.2, 4.4 and pain summary score-OR 1.7, 95% CI: 1.1, 2.6). . Ratcliffe et al [24] used the Canadian Community Health Survey (n=36,984, 77% response rate) and found that after adjusting for socio-demographics and Axis I mental disorders and comorbidities, the presence of one or more chronic pain conditions was associated with both suicidal ideation (OR 1.46; 95% CI: 1.21, 1.76) and suicide attempts (OR 1.94; 95% CI: 1.23, 2.99).

A systematic review of this literature by Tang and Crane [25] revealed that risk of successful suicide was doubled in chronic pain patients relative to non-pain controls. General risk factors for suicide in chronic pain patients included family history of suicide, previous suicide attempt, gender (female), and presence of comorbid depression. Pain-specific risk factors included location (low-back and widespread pain) and type of pain (e.g., migraine with aura conferred higher risk than migraine without aura, and chronic abdominal pain conferred higher risk than neuropathic type pain); high pain intensity; long pain duration; and presence of co-occurring insomnia.

Pain and Suicidal Ideation: Possible Mediators

Two prime candidates for mediating the relationship between pain and suicidal ideation are sleep disorders and catastrophizing. Clinical insomnia is quite prevalent in patients with chronic pain [26]. Smith et al [27] discovered in a sample of 51 outpatients with chronic noncancer pain that 24% endorsed suicidal ideation. Discriminate analysis revealed that sleep onset insomnia and pain intensity accounted for greater than 84% of these cases, independent of depression severity. Pain catastrophizing has been conceptualized as an exaggerated, negative focus on pain that can contribute to depression, pain intensity, and disability [28]. In a sample of 1,512 patients with chronic pain, 32% reported some degree of recent suicidal ideation. Magnitude of depression and pain catastrophizing predicted the occurrence and degree of suicidal ideation with poor pain coping skills being strongly associated with suicide, independent of depression, and pain severity [29]. Targeting improved sleep and pain coping skills may reduce the incidence of suicidal ideation and attempts.

Risk Assessment

General high-risk characteristics for suicide include age (>45 years old), gender (female), alcohol dependence, past suicide attempts, and history of psychiatric hospitalizations. Other pertinent factors include frequency of suicidal ideation, poor social support system, being unemployed, being divorced, suffering from chronic illness, and the severity of psychiatric disorders [15]. The evaluation of suicide potential in the chronic pain sufferer should include as part of a thorough examination questions targeting known risk factors such as psychiatric history, current and past suicidal ideations, plans and attempts, and level of depression assessed with standardized screening tools (see next section). Behaviors suggestive of increased risk may include giving away personal property, paucity of future goals, making a will, and experiencing a recent loss.

Mental-Health Screening

A variety of screening tools for depression and anxiety have been used both clinically and in research. Most of these tools are based on The Diagnostic and Statistical Manual of Mental Disorders, fourth edition, Text Revision (DSM-IV TR) [30], criteria for mood disorders and assess the affective and somatic dimensions of depression. In patients suffering from pain and co-occurring depression, depression may be misdiagnosed due to shared somatic

symptoms between pain and depression (e.g., sleep disturbance, weight and appetite changes, and changes in libido and/or energy).

The Beck Depression Inventory [31] and the Profile of Mood States (POMS) [32] are the two measures recommended by the IMMPACT consensus group on measuring emotional functioning in chronic pain trials [33]. The POMS assesses 6 distinct mood states, including 3 considered to be most relevant in chronic pain: depression, anxiety, and anger. The Beck Depression Inventory-II [34] is a 21-item self-report measure of the severity of depressive symptoms over the past week.

Other self-report measures of depression include the Beck Depression Inventory-Fast Screen for Medical Patients (BDI_FS) [35], which has been found valid in measuring depression in a pain population [36], Zung Self-Rating Depression Scale [37], and the Center for Epidemiologic Studies Depression Scale [38]. The BDI-FS may be more sensitive in accurately assessing depression in pain patients as it relies upon the non-somatic features of depression thus reducing misdiagnosis due to symptom overlap between pain and depression (sleep disorder, low energy, changes in appetite etc.). The Patient Health Questionnaire (PHQ-9) [39] is a self-rating instrument derived from the Primary Care Evaluation of Mental Disorders (PRIME-MD) [40] and measures 9 symptoms of depression based on the DSM-IV TR. Studies have revealed that in primary care, the PHQ-9 detects depression with sensitivity around 90% and specificity ranging from 77% to 88% [39, 41–43].

The Beck Anxiety Inventory [44] is a reliable and valid self-report measure of anxiety, as is the State Trait Anxiety Inventory [45].

Other instruments assess both depression and anxiety, including the Hospital Anxiety and Depression Scale (HADS) [46], Hopkins Symptom Checklist [47], and the PHQ-4 [48]. Factor analysis of a large cohort who were administered the PHQ-4 revealed that 2 distinct factors -- depression and anxiety -- accounted for the majority (84%) of the total variance, and increasing scores were associated with functional status and health care utilization [48]. Rickels et al [49] also developed a 4-item screening tool based on the PRIME-MD anxiety and depression tool for use in primary care. These 4 items had high sensitivity (78%) and specificity (95%). The brevity of these scales may have great appeal to physicians in busy clinical settings vs. a lengthier screening tool of anxiety and depression.

In selecting a screening tool for mental-health assessment in chronic pain patients, it is important to select an instrument that will fit the structure and time constraints of the clinic facilitating its use. For example, in a busy primary care practice a validated 4-item scale may be more practical whereas in an academic pain clinic more detailed scales may be warranted for teaching and research purposes. In addition, data must be available in the chart in a format that is easily accessed and interpreted. These scales can be easily integrated into an electronic medical record data base facilitating this process.

Intervention

Screened patients with moderate-to-high levels of depression with or without suicidal ideation should be referred to a behavioral health specialist for co-treatment. Patients with suicidal ideation may require inpatient treatment depending on the severity of their depression and suicidal ideation. Other factors include whether they have vague or specific suicidal plans and the means to carry out a plan (for example, access to a lethal amount of medications), a history of previous plans or attempts, a history of impulsive behavior, the level of support from family and friends, and their coping abilities. Patients who have a good relationship with their health care providers, who are able to contract that they will contact a clinic, local hospital, or 911 if their ideation worsens, and who have good impulse control

and a good personal support system can be managed safely as outpatients. During the acute suicidal phase, aggressive treatment should be initiated including pharmacotherapy targeting both depression and sleep along with supportive psychotherapy and the involvement of family members. If the patient requires ongoing opioid therapy, this should be prescribed judiciously in small amounts and dispensed daily by a family member. Frequent urine drug monitoring should be considered to ensure adherence. High-risk patients and patients who experience chronic suicidal ideation (but with no current specific plan or intent) should be encouraged to initiate and continue in meaningful psychotherapy and regular psychiatric care as part of their overall pain management program. A number of psychotherapeutic interventions such as coping skill acquisition to minimize catastrophizing and kinesiophobia [50], relaxation therapy [51], and cognitive behavioral treatment of sleep disorders [52] can reduce the psychological sequelae of pain, mitigating risk for suicide.

Summary

Concern is growing regarding fatal prescription opioid overdose in patients with chronic pain. The exact genesis of these overdoses is unclear but may include accidental overdose in cases of patients attempting to relieve suffering from poorly controlled pain or to induce sleep. Increasing literature shows that a subset of pain patients experience suicidal ideation. This literature underscores the real potential for catastrophic outcomes in patients experiencing chronic pain. Clinicians should be cognizant of the presence of depression and the risk of suicide, particularly when prescribing large doses of potentially lethal medications, such as opioids or benzodiazepines. When treating this patient population, the standard of care should include the routine screening of depression and risk assessment of suicide potential. A plan of action should be developed if a patient is determined to be at high risk for self injury. This plan should include contact information for local psychiatric emergency services.

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