Suicide prevention in primary care

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ABSTRACT Ongoing improvements in the safety, efficacy, and tolerability of antidepressant and antianxiety drugs allow outpatient management of many suicidal patients. Primary care physicians should evaluate those with suicidal ideation for degree of risk—whether imminent, high, or low. Appropriate interventions depend on the severity of risk and may include hospitalization, pharmacotherapy for underlying psychiatric disorders, and referral to psychotherapy or substance abuse programs. All patients should be monitored for the effectiveness of treatment and the reemergence of suicidal behavior.

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Suicide is self-inflicted death. An individual makes an intentional, direct, and conscious effort to end his or her life.[1] Four suicidal types have been distinguished: the death seeker, the death initiator, the death ignorer, and the death darer.[1] The death seeker has a clear intention of ending his life at the time of the attempt. Many suicide victims who are elderly or have a physical illness are acting as death initiators who believe the process of death is already under way, and they are merely hastening the inevitable. Death ignorers do not view suicide as the end of existence. An example is the 39 members of the Heaven's Gate cult who killed themselves in 1997 because they believed that death would liberate their spirits and let them ascend into a higher kingdom. A person who plays Russian roulette would be considered a death darer—one who demonstrates ambivalence in the method used for the suicide. Many in this group are expressing anger, seeking attention, or trying to make someone else feel guilty.[2]

Although suicide is not classified as a mental disorder by the *Diagnostic and Statistical Manual of Mental Disorders,* Fourth Edition (DSM-IV), suicide risk is associated with various psychological issues including a breakdown of coping skills, emotional turmoil, and distorted perspective. The most common mood changes are increased sadness, anxiety, tension, frustration, anger, or shame.[3] Suicidal individuals are seeking an escape from "psychache," a psychological pain caused by unfulfilled needs that is experienced as intolerable.[1]

Studies suggest that 20%-25% of suicide victims had contact with a health care professional—usually a family physician—in the last week

of life, 40% in the last month.[4] Thus, primary care physicians are in a unique position to identify patients at risk of suicide and provide potentially life-saving interventions.

Who commits suicide?

Suicide is the eighth leading cause of death in the United States, accounting for more than 30,000 deaths and affecting 11 of every 100,000 Americans each year.[5,6] An estimated 600,000 persons make unsuccessful suicide attempts annually.[5] But many investigators believe these figures are underestimated because coroners cannot always distinguish suicides from deaths due to accidental drug overdoses, automobile crashes, drowning, and the like.

One suicide may trigger others, especially if it is highly publicized, involves a celebrity, or is committed by a coworker or colleague. In the week after Marilyn Monroe's suicide in 1963, the national suicide rate rose by 12%.[7] Teenagers are particularly vulnerable.[7]

The likelihood of suicide generally increases with age, but no age-group is immune.[8] Although the incidence is relatively infrequent in children, the current rate is almost 800% higher than in 1950.[5] Each year, about 300 children younger than 14 years old kill themselves—approximately 0.5 per 100,000. Boys outnumber girls 3 to 1.[5] In addition, studies reveal that 6% of school-aged children have attempted suicide, and 33% have contemplated it.[9]

Suicide is currently the third leading cause of death among adolescents and young adults (after accidents and homicides).[10] In 1997, 4,186 adolescents and young adults in the United States were victims, more than 11 of every 100,000 persons between the ages of 15 and 24.[6] The ratio of attempts to fatalities may be as high as 100:1.[10] Most adolescents try to overdose on drugs.[10] Up to one half make additional attempts, and as many as 14% are eventually successful.[10]

In Western society, the elderly are more likely to commit suicide than any other age-group.[11] Those 65 and older account for 13% of the population but for 20% of suicide mortality.[12] Although they have fewer attempts than younger age-groups, the elderly are more likely to succeed. The rate for those 75 or older is more than three times that of the young, and rates of 40 per 100,000 have been reported in men 65 and older.[13]

Biological models of suicide

Studies have shown that suicide tends to run in families. At all stages of the life cycle, a family history of suicide is significantly more common among those who attempt suicide than those who do not. Family history is often associated with a violent suicide attempt.

This familial association prompted investigations into possible modes of transmittal. Early research identified a serotonin deficiency, measured as a decrease in the metabolism of 5-hydroxyindoleacetic acid (5-HIAA), in a group of depressed patients who attempted suicide.[14] About two thirds of the 18 studies examining serotonin function found that levels of cerebrospinal fluid 5-HIAA were lower in those with major depression who attempted suicide than in those who did not.[15]

The first study to associate suicidal behavior with a molecular genetic variant assessed tryptophan hydroxylase (TPH), the enzyme involved in the biosynthesis of serotonin, and its two alleles, U and L.[16] A history of multiple suicide attempts was present in most subjects with the LL genotype and to a lesser extent in those with the UL genotype, suggesting an association between repetitive suicidal behavior and the L allele.

Risk factors for suicide

Suicide is a multidetermined act and may be the end result of psychiatric, social, and biological factors, psychodynamics, and physical illness. Among the high-risk characteristics are age older than 45, male sex, alcohol dependence, violent behavior, previous suicidal conduct, and a history of psychiatric hospitalization[17] (Table 1, page 50).

• *Demographics* The annual rate of suicide in men is 19 per 100,000. The rate in women has been increasing in recent years but is still less than 5 per 100,000.[18] Although women outnumber men in suicide attempts by three to one, men are three times more likely to succeed,[5] probably because they tend to use more violent methods such as shooting, stabbing, jumping, or hanging, whereas

Table 1

Risk factors for suicide

Anhedonia
Depressed mood
Diagnosis of major affective disorder
Feelings of hopelessness, helplessness, and worthlessness
Global or partial insomnia
Inability to hold on to a job
Panic attacks
Recent abuse of alcohol or illicit substances
Recent loss of interpersonal relationship
Recent onset of impulsive behavior
Severe anxiety

women use less violent means such as a drug overdose.

The suicide rate of whites is 12 per 100,000, which is almost twice that of any other racial group[5] except for Native Americans whose rate is twice as high as the national average.[19]

• *Stressful life events* associated with suicide include the loss of a loved one by death, divorce, breakup, or rejection[20] and the loss of a job. In general, work protects against suicide. Unemployment and suicide rates in the United States rose and fell in unison from 1940-1984.[21]

• *Physical illness* was a well-established motivation for suicide[22] long before recent proposals advocating legalized assisted suicides in the terminally ill. One study found that 37% of suicide victims had been in poor physical health.[23] Some wish to end their slow and painful decline.[24] Medical conditions highly associated with suicide are cancer, AIDS, peptic ulcer disease (with alcoholism being a confounding variable), Huntington's chorea, head injury, renal disease, spinal cord injury, epilepsy, and multiple sclerosis.[25]

No group has been more ignored than those who become suicidal in response to serious or terminal illness. Patients interviewed 2 weeks after requesting assisted suicide expressed a significantly decreased desire to die.[26] Still, only 2%-4% of suicides are committed by the terminally ill; most fight for life to the end.[27]

Even when a suicidal person has a severe physical illness, major depression may play a key role. In one case, a depressed 26-year-old woman with cerebral palsy initially fought to have a psychiatric hospital assist her in committing suicide but when the depression lifted, her position reversed.[28]

• *Psychiatric illnesses* About 90%-95% of suicide victims have a mental disorder at the time of suicide,[29] most commonly a mood or substance-related disorder or schizophrenia. As many as 15% of those with each of these conditions attempt suicide.[30] Nevertheless, most psychiatric patients do not commit suicide. Suicide risk is greatest in bipolar depression and mixed states—as many as 25%-50% of bipolar disorder patients attempt suicide at least once.[31] Young men who are early in the course of the illness are at highest risk, especially if recently discharged from the hospital or abusing alcohol.

The overall suicide risk associated with affective disorders is lower than might be generally expected but is particularly high near the time of diagnosis. The estimated lifetime rate for those with major depression was 6% compared with the usually quoted figure of 15%, a discrepancy that may stem from sampling bias.[32] Depression and dependence on alcohol or major depression that coexists with a strong sense of hopelessness in particular appear to increase vulnerability.[33]

Although clinicians often assess for suicide risk in patients with diagnosed mood disorders, at least half of all suicides are related to conditions such as alcohol dependence or schizophrenia or occur in the absence of any clear mental disorder. The rate in patients with schizophrenia is much higher than that of the general population. Suicide is the leading cause of death among young and unemployed persons with schizophrenia who experience relapses over several years and believe the disorder will disrupt their lives forever.

• *Substance abuse* has been highly associated with suicide.[34] Someone caught in a downward spiral may be driven to substance use by psychological pain or loss, only to find himself caught in a pattern of abuse that aggravates rather than mitigates the problem. Persons in the late stages of a substance abuse disorder (such as cirrhosis) may be acting as death initiators.

Suicidal behavior and alcohol abuse are strongly associated, second only to the association with

Table 2

Suicide risk assessment

Sociodemographic factors
- Elderly
- Living alone
- Male
- Unmarried
- White

Stressors
- How are things going in your marriage (or relationship)? With your family? At home? At work? (address health, financial, marital, family, legal, and occupational concerns)

Depression and anxiety
- Have you felt sad, blue, or empty in addition to at least two of the following during the past 2 weeks?
  - Trouble going to sleep?
  - Felt tired or had little energy?
  - Poor appetite or overeating?
  - Minimal interest or pleasure in doing things?
  - Felt bad about yourself?
  - Trouble concentrating?
  - Felt fidgety, restless, or unable to sit still?
  - Have you been nervous, anxious, or on edge?
  - Have you had recent anxiety or panic attacks?

Evaluate for alcohol abuse (suggested by positive response to at least two of the following):
- Have you ever thought you should cut down on your drinking?
- Have you been annoyed at others' criticism of your drinking?
- Have you ever felt bad or guilty about your drinking?
- Have you ever had a drink right after you wake up to steady your nerves or get rid of a hangover?

Suicidal ideation
- Have you thought about death or about killing yourself? (If yes, ask the following):
  - Do you have a plan for how to accomplish it?
  - Do you have the means available (such as a gun and bullets or poison)?
  - Have you ever rehearsed or practiced how you would do it?
  - Do you tend to be impulsive?
  - How strong is your intent?
  - Can you resist the impulse?
  - Have you heard voices telling you to hurt or kill yourself?
  - Have you ever tried to kill yourself? (If yes, determine the degree of intent)
  - Have any members of your family committed suicide?

Source: Hirschfeld RMA. The suicidal patient. Hosp Pract (off ed) 1998;33:119-123, 127-128, 131-133.

affective illness. Studies indicate that as many as 60% of those who attempt suicide consume alcohol just before the act.[35] In about one fourth of cases, suicide victims are legally intoxicated at the time of death.[36] Attempted suicide rates among alcoholics range from 13%-50%, and the rate of completed suicides is 7%-8%, or 7-20 times higher than that of the general population. Alcohol may further impair a susceptible individual's judgment and problem-solving abilities.[32] The speculation that alcoholism is a self-destructive behavior that may act as a surrogate for suicide remains controversial.[37]

Tobacco smoking is also highly correlated with suicidal behavior, including fatalities in middle-aged adults and attempts in women. This association was supported in an analysis of data involving nearly 450,000 subjects.[32]

One postmortem analysis found that 25% of suicide victims had used cocaine.[38] And in older

studies involving 421 individuals, the suicide rate among heroin addicts ranged from 7%-25%.[39]

• *Social and cultural influences* can predispose to or protect against suicide. Research suggests that very religious people may be less vulnerable.[40] The suicide rate is relatively low in married persons (especially those with children), is higher in those who are single and widowed, and is highest in those who are divorced.[41]

• *A previous suicide attempt* is the best predictor of a future attempt or completion. Yet only 20%-30% of suicide victims have made an earlier attempt.[42] A lifetime of externally directed aggression and impulsivity are highly significant factors in distinguishing those who have a history of suicide attempts from those who do not.

• *Availability of guns* Firearms are used by two thirds of men and 40% of women who commit suicide.[41] In a recent study of 238,292 handgun purchasers, suicide was the leading cause of death in the first year after purchase, accounting for 25% of all deaths and 52% of deaths in women 21-44 years of age.[43] The rate of suicide in the first week after purchase was 57 times higher than the adjusted rate for the general population.[43] About 30% of the 4,223 firearm-related deaths of children in 1997 were suicides, and guns were used by 63% of 15- to 19-year-old suicide victims.[44] The use of firearms for suicide has decreased in states with gun control laws.[45]

Table 3

Suicide risk factors in adolescents

- Alcohol and other substance use
- Concern about sexual orientation
- Conduct disorders
- Depression
- Family disruption
- Family history of psychiatric disorders (especially depression and suicidal behavior)
- Firearms in the home
- History of physical or sexual abuse
- Presence of a diagnosable psychiatric disorder
- Previous suicide attempt
- Psychosocial problems
  - Breakup of a relationship
  - Physical ailments (including hypochondriacal preoccupation)
  - School difficulties or failure
  - Social isolation

The clinical examination

Asking about suicidal thoughts and behavior and documenting patient responses are key to identifying suicide risk[46] (Table 2, page 51). Of those who eventually kill themselves, 8 of 10 provide warnings of their intent.[47] Yet even though patients are often willing to reveal suicidal thoughts if asked, they rarely initiate a discussion or seek help on their own. Physicians may be hesitant to ask about suicidal thoughts because of concern about stimulating suicidal thinking and behavior, but no data support such a relationship.[48] Patients should thus be asked directly: "Are you currently thinking about or have you ever thought about killing yourself?"

The affective state of a depressed patient must be clearly defined with a question such as "Do you feel hopeless, desperate, or guilty?" The physician should also ask about factors that heighten risk such as not having plans for the future, giving away personal property, making a will, or having experienced a recent loss. Adolescent patients should be screened for psychosocial problems related to suicide risk at every encounter, including sports and camp attendance physical examinations and short-term care visits[49,50] (Table 3).

The mental state of all older patients with physical illness should be evaluated for depression and suicidal feelings (Table 4, page 55).[25,51] Interviewing family or friends can be beneficial, since older persons may express suicidal thoughts during intimate conversations.[52] Those with major depressive disorders who are reticent to talk about suicide may respond when asked about other death-related matters such as morbid thoughts or wishes for an expedited death. Denials of suicidal ideation do not always mean that further questioning is unnecessary.[52]

Suicide in the elderly may be preceded by symptoms such as insomnia, weight loss, feelings of guilt, and hypochondriasis.[25] Those who mask depression with hypochondriacal and somatic symptoms may be particularly vulnerable, espe-

cially elderly men because they are less likely to talk about depression or suicidal ideation.[25]

The clinical intervention

Management depends on the degree of risk: imminent (within 48 hours), short term (within days to weeks), or long term.[48]

Someone who expresses the intention to die and has a clear plan and the available lethal means is at imminent risk. Someone with coexisting depression and alcohol abuse, particularly with high levels of anxiety (especially panic attacks) is at short-term risk, even in the absence of suicidal behavior. Those with one or more risk factors in fairly mild form who do not exhibit suicidal behavior are at long-term risk.[48]

Whether to hospitalize patients with suicidal ideation is one of the most important decisions. Hospitalization is usually required for those at imminent risk.[48] A danger to oneself is one of the few clear-cut indications for involuntary hospitalization. The difficulties of recommending closed-ward hospitalization for anyone with depression and suicidal behavior are obvious. But certain patient populations, such as elderly depressed men who have communicated suicidal intentions, are especially serious suicide risks and warrant strong consideration for hospitalization.

If risk is high but not imminent, the physician should first secure the patient's permission and then try to involve a family member or close friend, advise him or her of the problem, and relate the need for increased vigilance and collaboration.[48] It is also important to determine and document the availability of lethal means (such as firearms and medications) and take steps to eliminate them. High-risk patients require increased contact with visits and telephone calls. Those with alcohol or other substance abuse problems should be referred to a comprehensive treatment program.[48]

• *Pharmacotherapy* Suicidal patients with psychiatric disorders should receive vigorous treatment.[48] Today's antidepressant and antianxiety agents with greater safety, efficacy, and tolerability profiles allow primary care physicians to manage many suicidal individuals on an outpatient basis.[46] Unfortunately, these highly effective antidepressant medications have little impact on suicide rates. One possible explanation is that potential suicide victims with major depression are not diagnosed or are undertreated. Despite the high prevalence of depression in this population, only a few people who commit suicide receive antidepressant drugs before death. Research indicates that although 32% of suicide victims had medical attention within the last 6 months of life, most were not given psychotropic medications.[53] One study found that even brief instruction to family physicians on the adequate treatment of depression markedly reduced the number of suicides in the community during the following year.[54]

Some physicians worry that patients may use prescribed medication to kill themselves, but only about 5% of suicides are the result of antidepressant overdose.[55] Preferential choices of antidepressant, which are safe in overdoses, include fluoxetine HCl (Prozac), sertraline HCl (Zoloft), paroxetine HCl (Paxil), nefazodone HCl (Serzone), venlafaxine (Effexor), and mirtazapine (Remeron).[48] The akathisia-like effects of selective serotonin reuptake inhibitors (SSRIs) may activate suicidal thoughts and impulses in a few susceptible persons, but this association has not been shown in large epidemiologic studies. Convincing evidence shows that the mood stabilizer lithium (Eskalith, Lithonate) decreases suicide risk, possibly as a result of its primarily presynaptic serotonergic and antiaggressive properties. It is particularly important to identify symptoms of agitation and insomnia in potentially suicidal patients and

Table 4

Suicide risk factors in the elderly

Bereavement (particularly in men)
Emotional factors
Persistent high levels of hopelessness
Low self-esteem
Lack of perceived belonging
Living alone
Male gender
Older age
Physical illness (especially involving pain)
Psychiatric illness (including alcohol abuse, depression, history of attempted suicide, and a rigid personality that is poorly adaptive to change)

provide aggressive treatment early with benzodiazepines on an as-needed basis.

Adherence is better when moderate, individualized doses are used for optimal tolerability and when pharmacotherapy is combined with psychotherapeutic and supportive treatments.[56] Physicians should avoid iatrogenic stressors that may contribute to suicide including rapid changes in treatments or doses and abrupt discontinuation of ongoing maintenance therapy.[56]

Close follow-up of high-risk patients is mandatory, including telephone contact and visits, to recognize and manage side effects that may interfere with compliance and to intervene when suicide risk increases during the first few days of treatment.[48]

- *Electroconvulsive therapy (ECT)* may be the most effective and rapid treatment available. It can exert a profound short-term beneficial effect on suicidality and is associated with long-term protective effects against mortality. ECT is an established and highly effective biological treatment for psychiatric disorders characterized by suicidality, such as major depression with or without psychotic features, acute mania, and schizophrenia. This therapy should also be considered for suicidal patients who cannot tolerate or do not respond to antidepressant therapy and in whom antidepressants are contraindicated because of medical conditions.[48]
- *Psychotherapy* should begin once depression begins to resolve with antidepressant therapy[46] or the patient who has attempted suicide has been medically stabilized. While this may seem a logical next step, one study found that 46% of persons treated in a Helsinki general hospital for attempted suicide did not receive a psychological consultation.[57] Another suicide attempt is made by about 16% of those in psychotherapy and by 30% for those not in therapy.[58] The goal of therapy is to keep patients alive, help them achieve a nonsuicidal state of mind, and guide them toward constructive ways of handling stress and solving problems.

Suicide prevention strategies

The emphasis on suicide prevention began in the mid-1950s, and there are now more than 200 independent locally funded suicide prevention centers in the United States.[59] Weapon control may play a role in prevention. The American Academy of Pediatrics recommends that all child health care professionals tell parents about the dangers of guns both in and outside the home.[44] Despite such recommendations, research has indicated that efforts to control this lethal means of suicide produce negligible effects. Further, hot lines and crisis services have little impact on community suicide rates.

It is not always easy to comprehend why some people kill themselves and others in similar circumstances manage to find alternative ways of addressing problems. One proposed model suggests that suicide requires an underlying condition such as a mood disorder, substance abuse, or aggressive trait. Identifying risk factors is thus an important element in prevention. But the primary prevention strategy is education, understanding that suicide can happen to anyone, that verbal and behavioral clues can be recognized, and that help is available. Suicide should be a focus of attention for the public and researchers alike. Although it is typically a lonely and desperate act, its implications and impact are far-reaching.

Conclusion

Suicide must be treated as a more routine phenomenon, as simply another medical condition. No test or technique can objectively define the level of risk. Evaluation must consider multiple factors and clinical elements. Suicidal ideation is usually the symptom of a treatable illness, most often depression, and should prompt a thorough examination of the patient's mental state. It is important to remember that mood disorders in children, young adults, and the elderly are often substantially different entities with separate prognoses, courses, and treatment responses.

The goal of suicide assessment is to identify risk factors and determine the severity of risk. Since the degree of risk can shift over time, a repeat assessment may be needed. Vigilance is essential. Suicidality continues to play a major role for about 1 year after an acute episode. If a trigger recurs, perhaps 2 or 3 years later, suicidality can reemerge. The suicidal patient is always at risk. ■

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SELF-EXAMINATION

1. Studies indicate that about _____% of suicide victims had contact with a health care professional in the last month of life.

   a) 10
   b) 20
   c) 30
   d) 40

2. Young men are more likely to commit suicide than any other age-group.

   a) true
   b) false

3. Which of the following statements about suicide risk factors is not true?

   a) The suicide rate in whites is higher than that of any other racial group.
   b) The terminally ill commit about 2%-4% of all suicides.
   c) Tobacco smoking is highly correlated with suicidal behavior.
   d) About 20%-30% of suicide victims have a history of at least one suicide attempt.

4. Roughly _____% of suicide victims gave warnings of their intent.

   a) 20
   b) 40
   c) 60
   d) 80

5. The availability of newer antidepressant drugs has resulted in reduced rates of suicide.

   a) true
   b) false

Answers at end of reference list.

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Answers: 1)d, 2)b, 3)a, 4)d, 5)a

The Ten Commonalities of Suicide

I. THE COMMON PURPOSE OF SUICIDE IS TO SEEK A SOLUTION

II. THE COMMON GOAL OF SUICIDE IS CESSATION OF CONSCIOUSNESS

III. THE COMMON STIMULUS IN SUICIDE IS INTOLERABLE PSYCHOLOGICAL PAIN

IV. THE COMMON STRESSOR IN SUICIDE IS FRUSTRATED PSYCHOLOGICAL NEEDS

V. THE COMMON EMOTION IN SUICIDE IS HOPELESSNESS-HELPLESSNESS

VI. THE COMMON COGNITIVE STATE IN SUICIDE IS AMBIVALENCE

VII. THE COMMON PERCEPTUAL STATE IN SUICIDE IS CONSTRICTION

VIII. THE COMMON ACTION IN SUICIDE IS REGRESSION

IX. THE COMMON INTERPERSONAL ACT IN SUICIDE IS COMMUNICATION OF INTENTION

X. THE COMMON CONSISTENCY IN SUICIDE IS WITH LIFE-LONG COPING PATTER

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