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Identification of Suicidal Ideation and Prevention of Suicidal Behaviour in the Elderly

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Abstract

In almost all industrialised countries, men aged 75 years and older have the highest suicide rate among all age groups. Although in younger age groups suicide attempts are often impulsive and communicative acts, suicide attempts in older people (defined as aged 65 years and older) are often long planned and

involve high-lethality methods. These characteristics, in addition to the fact that elderly are more fragile and frequently live alone, more often lead to fatal outcome.

In later life, in both sexes, the most common diagnosis in those who attempt or complete suicide is major depression. In contrast to other age groups, comorbidity with substance abuse and personality disorders is less frequent. Physical illness plays an important role in the suicidal behaviour of the elderly: most frequently, depression and illness co-occur; less often, the physical illness or the treating medications are causally related to the depressive symptoms. However, only 2 to 4% of terminally ill elderly commit suicide. In addition to physical illness, complicated or traumatic grief, anxiety, unremitting hopelessness after recovery from a depressive episode and history of previous suicide attempts are risk factors for suicide attempts and completed suicide. During a depressive episode, elderly patients with suicidal ideation have higher levels of anxiety and, during treatment, anxiety decreases the probability of remission and recovery. As well as overt suicide attempts, indirect self-destructive behaviours, which often lead to premature death, are common, especially in residents of nursing homes, where more immediate means to commit suicide are restricted.

Although we do not have randomised trials of treatment, studies suggest that antidepressant treatment may decrease suicide risk. Prevention and treatment trials are underway to detect the effectiveness of improved treatment of depression by primary care physicians as a means of reducing the prevalence of depressive symptoms, hopelessness and suicidal ideation.

1. Epidemiology of Suicidal Behaviour in the Elderly

In almost all industrialised countries, men aged 75 years and older have the highest suicide rate among all age groups.[1] Of the countries that provide suicide data, Hungary has the highest suicide rates for both elderly men and women: from 1991 to 1992, the suicide rate for men aged 75 years and older was as high as 178 per 100 000 population.[2] The lowest rates for both elderly men and women were in Northern Ireland, and England/Wales, with rates for men being 20 per 100 000 and 18 per 100 000 population, respectively, in 1987.[3] In the US in 1996 (the most recent rates available), white men aged 85 years and older had the highest suicide rates, 65 per 100 000 population. This rate is over five times the rate of all age-adjusted suicides.[4] In the US, over the last two decades, men have accounted for about four of every five completed suicides in the 65 years and older age group. This is partly explained by the fact that men are more likely to use higher lethality methods: in the US, 74% of men and 31% of women aged 65 years and above who completed suicide used firearms,[5] whereas 3% of men and 33% of women who completed suicide used overdose of medications.[6]

Suicide rates vary with age, ethnicity and marital status. In the US, the suicide rate of Caucasian, Chinese, Japanese and Filipino American men increases with age, while in African-American, Hispanic, Native American, and Alaska Native men the highest suicide rate is in the middle-aged (25 to 64 years).

The incidence of combined murder and suicide for persons aged 55 years and older is increasing, and has been estimated to equal 0.4 to 0.9 per 100 000 population.[7] In most cases, an elderly husband who is the caretaker kills his wife and then himself. In addition to physical illness, marital discord plays an important role in elderly murder-suicide cases.

2. Considerations Specific to Suicide in the Elderly

2.1 The Elderly Are More Likely to Die in or Following a Suicide Attempt

In every suicide, even in the apparently most determined individuals, there is a degree of ambivalence. In younger age groups, suicide attempts are often impulsive and communicative acts ('a cry for help'). In late life, most attempts can be considered 'failed suicides'. Older individuals make fewer suicide attempts per completed suicide than younger individuals.[8] The ratio of attempts to suicide completion is estimated to be approximately 4 : 1 among the elderly,[9] whereas for the population as a whole estimates for the ratio range between 8 : 1 and 20 : 1.[10,11] The reason for this low attempt-to-completion ratio is complex. The elderly have more health problems and frequently live alone, which increases the probability of a fatal outcome. Suicides in older people are often long planned and involve highly lethal methods.

In addition, although most people who kill themselves give direct or indirect warnings, older people are less likely to directly communicate their intent to die or, as Conwell's group[12] indicates, the warnings are less likely to be heard. As the elderly are often preoccupied with death and dying, those within their environment are more likely to miss the indirect warnings that they give (e.g. statements such as 'nothing is in front of me anymore'). However, contrary to common belief, lack of hope is not part of normal aging, even in the terminally ill elderly.

Conwell's group[12] reported age differences in suicidal intent using the psychological autopsy method. According to their findings, older individuals who committed suicide had higher intent on the Suicide Intent Scale.[13] That is, older adults were more likely to have avoided intervention, taken precautions against discovery, and were less likely to communicate their intent to others. The research on intent increasing with age suggests that elderly persons who are at risk for suicide may be more difficult to identify as being at risk than younger persons. Moreover, older men, in particular, were less likely to have had a history of previous attempts, while older women who completed suicide were more likely to have attempted suicide in the past than younger female individuals who committed suicide. Thus, older men at risk for suicide may be more difficult to detect than older women at risk.

2.2 Identification and Treatment of Indirect Self-Destructive Behaviours in the Elderly

In addition to overt suicide attempts, there are subtle behaviours, especially in the elderly with conscious or unconscious intent to die, such as refusal to eat or drink, noncompliance with treatment or extreme self-neglect. Farberow[14] was the first to use the term 'sub-intentional suicide', referring to indirect self-destructive behaviours (ISDB) in which noncompliance was not part of cognitive impairment. These self-destructive behaviours, which often lead to premature death, may be particularly common in certain settings such as nursing homes, where more immediate means to commit suicide are limited, and among people whose religion deems suicide to be a sin. Osgood[15] reported that ISDB occurred significantly more frequently in church-affiliated nursing homes than in public and private nursing facilities.

Osgood et al.[16] calculated the suicide rate in nursing homes and found that the rate of completed suicide among elderly nursing home residents was 16 per 100 000 compared with 19 per 100 000 for elderly living in the community. They also examined the rates of IDSB in nursing homes, and found that the rate of ISDB that led to death was 80 per 100 000, and the rate of ISDB that did not result in death was over 227 per 100 000.[16] Kastenbaum and Mishara[17] found that 44% of men and 22% of women who were hospitalised for chronic physical illness exhibited ISDB during a 1-week period.

Gerber and colleagues[18] compared dialysis patients who were compliant and noncompliant with treatment. They found that noncompliant patients

experienced more intense feelings of powerlessness, felt less valued, and were described by the staff as more irritable and suspicious than compliant patients. Kastenbaum and Mishara[17] proposed that there may be cases when ISDB is neither subintentional suicide, nor is caused by cognitive impairment, but rather is an attempt by the patient to regain control over a situation in which he or she feels helpless and hopeless. In many cases, the motivation is complex; ambivalent feelings to end one's life may coexist with a desire to regain control or to test the response of family members and healthcare professionals. Successful treatment is not possible without understanding the patient's motivation, responding to their complaints, treating them with dignity, and at the same time treating their depressive symptoms, which are almost always present.

Depression and hopelessness should be warning signs of potential suicidal behaviour, especially in elderly people residing in long-term care facilities. In addition, food refusal and other self-harming behaviour should be signs that the resident should be evaluated for psychological distress and provided appropriate treatment. The Scale of Suicidal Ideation (SSI)[19] can help clinicians to identify patients with ISDB. The SSI asks if patients would: (i) avoid steps necessary to save or maintain life; (ii) deliberately ignore taking care of their health; and (iii) try to die by eating too little or by not taking needed medications. Using the SSI and the Beck Depression Inventory, we found that elderly patients with depression who were exhibiting ISDB had similarly high levels of hopelessness and were similar to patients who reported that they were thinking about killing themselves by suicide.[20]

3. Risk Factors for Suicide in the Elderly

3.1 Biology and Personal History

In all age groups, suicide attempts and suicidal ideation are the strongest predictors of completed suicide.[21-23] There is a subgroup of patients who become suicidal in each or almost each subsequent depressive episode, while other patients with similar levels of depression do not express suicidal ideation or attempt suicide. According to the stress-diathesis model of suicidal behaviour, the probability of a suicide attempt or completed suicide is determined by a biological vulnerability.[24] This diathesis increases the vulnerability to depressive illness and stress response, manifested in persistent hopelessness and inward-directed aggression.

The most consistent biological finding in individuals who attempt or complete suicide is a low level of 5-hydroxy-indoleacetic acid (5-HIAA), a serotonin metabolite, in their cerebrospinal fluid.[25] This finding has been found across different age groups and was confirmed in elderly individuals who attempted suicide.[26] Cerebrospinal 5-HIAA level has been found to be lower in those with a history of high-lethality well planned suicide attempts than in those with a history of low-lethality suicide attempts.[27]

A study by van Heeringen[28] showed that, compared with control individuals with depression, those who attempted suicide were characterised by higher levels of hopelessness, a higher score on the personality dimension of Harm Avoidance (indicating behavioural inhibition) and a reduced binding potential of serotonin 5-HT_{2A} receptors in the prefrontal cortex as measured by single photon emission computed tomography (SPECT). Recent studies showed an association between hypothalamic-pituitary-adrenal axis (HPA) abnormality[29] and completed suicide, and also found that low serum cholesterol levels increase the risk for suicide attempts and completed suicide, especially in men.[30] We are getting closer to understanding the neurobiological basis of how chronic stress increases the vulnerability to suicide. Corticosteroids alter serotonin neurotransmission. Chronic stress causes HPA overactivity, resulting in high cortisol levels, which may cause changes in cells in the hippocampus and impaired glucocorticoid feedback.[29]

A family history of completed suicide and suicide attempt also increases the suicide risk, probably mediated by increased biological vulnerability as well as modelling effects.

3.2 Comorbid Conditions that Increase Suicide Risk

3.2.1 Physical Illness

Physical illness plays an important role in the suicidal behaviour of the elderly. In some cases, the physical illness or the treating medications are directly causally related to the depressive symptoms. Most often, physical illness and suicidal behaviour co-occur. According to an extensive literature review by Harris and Barraclough[31] cancer, HIV/AIDS, Huntington disease, multiple sclerosis, peptic ulcer, renal disease, spinal cord injury and systemic lupus erythematosus increase the risk for completed suicide. For individuals with malignancies, the suicide risk is greatest in the year immediately following the diagnosis. The fear of an illness and the anticipation of an unfavourable course increase the risk of suicide. Further, as Harris and Barraclough[31] state, 'of those with an increased risk, most have association with mental disorder, substance abuse, or both; these factors may be the link between medical disorder and suicide'.

Chronic physical illness has been associated with an increased suicide risk in patients with depression.[32] However, a recent study reported that among patients with depression, greater severity of depression and not physical illness or overall functioning differentiated elderly individuals who completed suicide from those who did not complete suicide.[33]

Only 2 to 4% of terminally ill elderly commit suicide.[34] As discussed in section 2.2, a higher but unknown number of elderly individuals accelerate their death with ISDB. Suicidal ideation is rare without depression even in the terminally ill. Untreated or under-treated pain, anticipatory anxiety regarding the progression of the physical illness, fear of dependence and fear of burdening the family are the major contributing factors in the suicidality of elderly with physical illness. Studies have shown that adequate management of chronic pain decreases the request to die among younger cancer patients.[35] Similarly, clinical experience suggests that when pain and depression are adequately treated, most of the previously suicidal elderly express a wish to live. In one study, two-thirds of the patients who requested euthanasia changed their minds during a 2-week follow-up period.[36] Protective factors associated with lower levels of suicidal ideation in the context of life-threatening illness include a greater level of 'fighting spirit'.[37]

It is often more difficult to diagnose depression in the elderly because of the overlap between the vegetative symptoms of depression and the symptoms of comorbid physical illness.[38] In addition, many elderly patients with depression present with masked depression, that is, they present with somatic complaints and minimise their psychological distress. Masked depression is even more common in cultures where somatic illness in the elderly is more readily accepted than mental disorders.[39]

3.2.2 Mood Disorders

Suicide rates of patients with depression are far higher than those of the general population. The estimate of lifetime prevalence of suicide in depressed patients ever hospitalised after a suicide attempt or as a consequence of suicidal ideation was 8.6%, whereas it was less than 0.5% in the population without an affective disorder.[40] In patients with affective disorders severe enough to need hospitalisation without suicidal ideation or attempt, the lifetime suicide risk was 4.0%.[40] According to a study by Frierson[41] who examined patients after a suicide attempt, in the 60- to 90-year-old age group 16% had an earlier attempt and the rates of previous attempts associated with untreated mood disorders increased with each subsequent decade.[41] Psychological autopsy studies have found depression to be the most common psychiatric diagnosis in elderly individuals who committed suicide, whereas alcohol dependence is the most common diagnosis in younger adults.[42,43] For instance, in a study of elderly individuals who committed suicide, 76% had diagnosable psychopathology including 54% with major depression and 11% with minor depression.[43] Another psychological autopsy study has confirmed that depression is the most likely psychiatric diagnosis in

elderly individuals who commit suicide.[44] Major depression is also the most frequent diagnosis among elderly individuals who attempt suicide.[43]

The clinical profile of depressed elderly individuals who have committed suicide suggests that, if treated, these patients would have had a favourable prognosis. Studies have observed that depression in such patients is often without comorbid substance abuse or personality disorders.[44] These characteristics have been associated with good response to psychotherapy and pharmacotherapy.

3.2.3 Hopelessness

Hopelessness has been found to be a component of depression.[23] A recent study of institutionalised elderly patients showed that hopelessness was strongly related to suicidal ideation.[45] However, this relationship was dependent upon the level of depression. Elderly patients with high severity of depression were more likely to have suicidal ideation with increasing hopelessness; hopelessness did not predict suicidal ideation in those with low severity of depression. Rifai et al.[46] reported high levels of hopelessness in elderly patients with a history of suicide attempt. We found that, even after the resolution of their depression, elderly patients with a history of suicide attempts had persistently higher levels of hopelessness than either patients who had suicidal ideation but who never attempted suicide or patients who did not have suicidal ideation and had not attempted suicide.[47] These findings suggest that hopelessness, suicide ideation and depression should be taken into consideration when assessing suicide risk in the elderly.

3.2.4 Alcohol Abuse

As have we emphasised in a previous paper,[48] although substance abuse is not a common disorder among late-life suicides, there is some evidence that, for a subset of 'young old' individuals who commit suicide, alcohol abuse may play a role. For men with alcohol dependence who have survived to their fifties and sixties, the combination of continued alcohol abuse and burn-out of their social supports may be lethal. Murphy and colleagues[49] reported that for older males with alcohol dependence, the loss of the last social support can provoke a suicide crisis. Similarly, Duberstein et al.[50] found that the combination of interpersonal stressors and recent alcohol use increased risk for suicide. In a Finnish sample, Heikkinen and colleagues[51] compared individuals with depression but no alcohol dependence with alcohol-dependent individuals who had committed suicide. Unlike those with depression, alcohol-dependent individuals were likely to have had recent interpersonal loss, unemployment and financial trouble. Drinking patterns appeared to lead to these concurrent stressors. Increase in alcohol consumption may signal worsening depressive symptoms and/or anxiety.

3.2.5 Anxiety

In a study of the risk factors for completed suicide in middle-age patients with a high rate of substance abuse, several factors, including psychic anxiety and panic attacks, were associated with suicide attempt within a year of the diagnosis of major affective disorder.[52,53] In another study, panic disorder did not increase the risk for suicide attempt or completion in the absence of other risk factors.[54] No study to date has examined the relationship between anxiety disorders and suicidality in a geriatric population. We found in a group of 180 elderly patients with recurrent unipolar depression that patients who reported suicidal ideation in a current depressive episode had higher levels of anxiety before starting treatment than non-suicidal depressed patients. In our study group, pretreatment anxiety was negatively related to both remission and recovery.[55]

3.2.6 Bereavement and Social Isolation

Painful losses that accompany aging have been shown to be risk factors for suicide.[56] The effect of spousal loss on suicidality appears to be most pronounced in elderly men. In the US, the highest suicide rate is among bereaved elderly Caucasian men: 84 per 100 000.[6] The risk of suicide is the highest in the first year of bereavement, but remains elevated until the fifth year after the loss.[57] Complicated, or 'traumatic' grief, which is distinct

from bereavement-related depression, includes post-traumatic stress disorder-like symptoms.[58] These symptoms may include intrusive thoughts about the deceased, avoidance of reminders of the deceased, survivor guilt and attachment disturbance-like symptoms such as lack of acceptance of the death or symptoms of identification (for example, pain in the same part of the body as the deceased experienced). In a group of spousally bereaved elderly, patients who had high scores on a scale of complicated grief were more likely to have suicidal ideation than patients who had low complicated grief scores.[58] Elderly individuals who had a prior suicide attempt were more likely to have suicidal ideation after a loss than patients who did not have a history of suicide attempt.[58]

Sudden changes in social relationships, such as bereavement or divorce, increase the rate of suicide. Early studies[59,60] found that elderly individuals who committed suicide were more likely to have lived alone compared with other community-living elderly. Subsequently, Conwell's group[61] reported that the rate of elderly individuals who committed suicide and were living alone at the time of death did not increase with age. Carney et al.[62] did not find differences in the rates of social contacts and living arrangements between young and elderly individuals who completed suicide. Living alone does not equal social isolation, and an individual can be socially isolated even if he or she lives with someone else (e.g. the caregiver of a seriously ill person). Comorbid conditions such as substance use can increase social isolation. A study reported that elderly at age 85 years were more likely to live alone if they had abused alcohol at age 50 years.[49] One study reported that reduction of social isolation and the easy availability of healthcare professionals via a telephone TeleHelp/TeleCheck service may reduce suicide risk.[63]

4. Assessment and Treatment of Suicidal Patients in Later Life

Assessment and treatment of a suicidal patient is one of the most challenging and anxiety-provoking tasks for a mental health professional, but it can also be exceptionally rewarding. Epidemiological risk factors can only guide the evaluation of an individual patient. Good communication among all the healthcare workers involved in the treatment of a suicidal patient is crucial. When patients report sad mood or loss of interest in pleasurable activities or when they appear to be depressed, the following questions should always be asked:

- Have you been feeling so sad lately that you were thinking about death or dying?
- Have you had thoughts that life is not worth living?
- Have you been thinking about harming yourself?

These questions should be followed by a more direct question about suicide intent. If the answer is yes, patients should be asked whether they have thought about a specific method and whether they have access to lethal means. The availability of firearms should always be assessed, and if available they should be removed from the household. Although most suicide *attempts* in the US are by overdose of medications, the majority of *completed* suicides are carried out using firearms. When patients deny suicidal ideation, or endorse suicidal ideation but state that they would not act on it, they should be asked about deterrents against suicide (e.g. religious beliefs, fear of disapproval, concerns about their legacy if death is by suicide, family obligations). When suicide risk is suspected by the clinician but denied by the patient, family members or friends should be asked whether the patient is giving warnings or clues such as making a will or giving away property.

The assessment of suicide risk should also include the assessment of other risk factors such as previous suicide attempts, any diagnosis involving psychosis or mania, severity of depression and hopelessness, substance use, poor impulsive control, treatment noncompliance, lack of social support, lack of reasons for living, and recent stressful life events. For a more comprehensive assessment of suicide ideation and suicidal behaviour, the Scale for Suicide Ideation[19] may also be administered.

If a patient reports suicidal ideation with a plan, and lethal means are available, hospitalisation is necessary. The clinician should not say that hospitalisation is necessary to avoid suicide. Rather, he or she should communicate the conviction that hospitalisation is necessary because treatment in the hospital will make the patient feel better. The best way to decrease suicide risk is to treat the underlying psychiatric disorder, which in the majority of the cases in the elderly is depression.

If the patient endorses suicidal ideation but does not have a plan, is not psychotic, has good judgement, has few risk factors (in particular, absence of a previous high-lethality attempt) and lethal means are not available, the patient's social support needs to be activated. Permission to contact a family member or a friend immediately should be obtained (list their phone numbers in the chart) and they should be informed about the patient's suicidal thoughts. Their opinion about hospitalisation versus outpatient treatment, and how much contact they will have with the patient in the next few days, should be assessed. If, on the basis of the above assessment, outpatient care seems to be sufficient, the next appointment should be set up in no more than a couple of days, and the suicide risk should be reassessed. Clinicians should immediately contact suicidal patients if they miss an appointment. Patients should be provided with a phone number where the clinician or a colleague can be contacted at any time. For a more comprehensive description of high-risk management strategies for elderly suicidal patients, see Brown et al.[64]

4.1 Use of No-Suicide Contracts

The no-suicide, or no-harm, verbal or written contract, in which patients agree that they will inform a relative, friend or healthcare provider of their suicidal intent, and not act on it, is widely recommended. Note, however, that there is no evidence that these contracts are helpful.[65] The agreement has two sides. The treating healthcare professional provides phone numbers where they or a colleague can be available at any time, and the patient agrees to make contact, or go to the hospital emergency room, if contemplating harm to himself or herself. In a survey, 57% of the responding psychiatrists said that they use written or oral no-suicide contracts. Within this group, 41% of the psychiatrists had a patient who committed suicide or made a serious suicide attempt after entering into a no-suicide contract. A no-suicide contract with a new patient with whom a therapeutic alliance has not yet been established is of little value. No-suicide contracts may alleviate the mental health professional's anxiety without affecting the patient. 'The contract against self-harm is only as good as the underlying soundness of the therapeutic alliance . . . the problem with the patient contract against suicide is that it may falsely relieve the practitioner's concern and lower vigilance without having beneficial effect on the patient's suicidal intent.'[66]

5. Treatment of Late-Life Depression

5.1 Pharmacotherapy

5.1.1 Antidepressants

The selective serotonin reuptake inhibitors (SSRIs) are better tolerated and easier to administer than older antidepressants. Randomised studies of SSRIs have included more than 2000 depressed elderly patients.[67] Even when SSRIs are not tolerated, their adverse effects typically consist of subjective discomfort rather than a significant health risk to the patient. Their tolerability in routine use and overdose[68] and their simplicity of administration allow these agents to be used by non-specialised physicians.

Regardless of class, antidepressants lead to improvement of depressive symptomatology in approximately 60 to 70% of elderly patients, in whom the placebo response rate is 30 to 40%.[67] Even among responders, a significant number of elderly patients continue to have significant residual symptomatology.[67] Therefore, longitudinal monitoring of geriatric patients treated with antidepressants is indicated. It is important to emphasise that existing research data do not support firm conclusions about

the benefits of medication in milder or subclinical forms of depression.[69,70]

In adults from mixed age groups, maintenance antidepressant drug treatment has proven more efficacious than placebo.[71-73] In elderly patients with major depression, two studies have shown that nortriptyline and phenelzine alone or in combination with interpersonal psychotherapy constitute effective continuation treatment (i.e. for 4 to 6 months following remission) for geriatric depression.[74,75] Nortriptyline and phenelzine have been found to be more effective than placebo as a maintenance treatment (i.e. for up to 3 years following recovery) for geriatric major depression.[76-78] The same dosage of the drug that successfully treated the acute episode seemed to afford effective prophylaxis, whereas dosage reduction may compromise the stability of recovery.[79,80]

5.1.2 Mood Stabilisers

The role of agents other than antidepressants in reducing suicide risk has not been fully investigated, except for lithium. In young and middle-aged groups there is evidence supporting the prophylactic use of lithium in patients with major mood disorders at high risk of committing suicide.[81] Schou[81] reviewed 46 reports (including over 19 000 patients) on the effectiveness of lithium prophylaxis to prevent suicidal behaviour: 'the number of suicide attempts was 6 to 15 times lower and the number of completed suicides 3 to 17 times lower when the patients were on lithium than when they were not'. However, it is possible that the protective effects of lithium vary as a function of age. The prophylactic effect of lithium on suicide in late life has not been evaluated.

In addition to the mood stabiliser effect of lithium, it has been shown to be useful to control aggressive behaviour.[82] Furthermore, regular checks of serum lithium concentrations increase compliance. The incidence of lithium adverse effects increases with age, since lithium clearance decreases in association with diminished glomerular filtration rate, and many types of medications (diuretics, nonsteroidal anti-inflammatory drugs and ACE inhibitors) affect serum lithium levels, as do changes in hydration status.[83] Lithium reduces the long-term risk of recurrent depression and mixed states, even at blood concentrations of 0.6 to 0.7 mmol/L.[84] Moderate dosages may be better tolerated in the elderly population with comorbid medical conditions.

A study is currently underway to compare the efficacy of valproic acid and lithium in the prevention of suicidal behaviour in patients with bipolar disorder (Mann JJ, personal communication).

5.2 Can Antidepressants Increase the Risk of Suicide?

The United Kingdom Medicines Control Agency recently called for suicide warnings to be added to patient information leaflets on SSRI antidepressants, following a review by the Committee on Safety of Medicines.[85] In a 1999 review article, Healy et al.[86] described five different mechanisms by which antidepressants might lead to suicide. These mechanisms included: (i) alleviation of somatic symptoms prior to remission of suicidal ideation; (ii) an antidepressant-specific direct effect; (iii) an antidepressant adverse effect (especially increased anxiety due to akathisia); (iv) toxicity in overdose; and (v) or treatment inefficacy. Although randomised placebo-controlled trials have not specifically examined this issue, most results from large double-blind studies do not suggest a causal relationship between pharmacotherapy and emergence of suicidality.[87]

On the contrary, almost all available data suggest that the most significant problems associated with the use of antidepressants in suicidal patients are undertreatment of depression and treatment failures rather than the risk of medication overdose.[88] Several studies suggest that antidepressant treatment is associated with decreased suicide risk.[89-92] Isacsson,[89] in a naturalistic study, found that a 3.5-fold rate of increase of antidepressant use in Sweden between 1991 and 1996 has been associated with a 19% decrease in the suicide rate of the population. Unfortunately, both practical and ethical constraints (i.e. the impossibility of randomis-

ing depressed suicidal patients to no treatment) will probably prevent a definitive resolution of this controversy. A useful approach may be to compare 'treatment as usual' to 'intervention treatment' that specifically targets suicidal behaviour.[93]

5.3 Electroconvulsive Therapy

Electroconvulsive therapy (ECT) is a well tolerated and effective treatment for moderate or severe major depressive disorder, with controlled clinical trials showing efficacy superior to placebo, simulated ECT and antidepressant medication therapy.[83] ECT is strongly indicated in patients with very high suicide risk who cannot be allowed to wait for the 3- to 6-week interval needed for antidepressant agents to provide relief.[94] In addition, ECT is often the treatment of choice in severely depressed elderly patients with comorbid medical conditions or poor tolerance of psychotropic medications.[95] The safety and efficacy of ECT have been demonstrated for depressed patients with cardiovascular disease[96] and stroke,[97] and for physically ill elderly patients.[98] Even the oldest patients with severe major depression appear to tolerate ECT and demonstrate similar or better acute response rates compared with younger patients, despite having a higher burden of physical illness and cognitive impairment.[99]

Although ECT often exerts a profound short-term beneficial effect on suicidality, little evidence supports a long-term positive effect of ECT on suicide rates.[100] A recent study showed the importance of continued antidepressant treatment after ECT.[101] The study compared a group of depressed patients who committed suicide and a control group of depressed patients, all of whom had received ECT. Although there was no difference in the frequency of ECT use and its efficacy, at the time of the last contact only 13% of the patients in the lethal suicide group were receiving continued antidepressant treatment compared with 46% of the patients who did not commit suicide.

5.4 Psychotherapy

The US National Institutes of Health (NIH) Consensus Conference on Late-Life Depression concluded that psychotherapies, including interpersonal psychotherapy, cognitive-behavioural therapy, problem-solving therapy and, perhaps, psychodynamic approaches, are as effective as antidepressant drugs in the acute treatment of elderly outpatients with mild to moderate nonpsychotic depression.[102] Interpersonal psychotherapy is a brief focused psychotherapy that addresses four factors that are often part of the interpersonal context of older suicidal patients: grief, role transitions, role disputes and interpersonal deficits. When combined with nortriptyline, interpersonal psychotherapy constitutes a highly effective acute, continuation and maintenance treatment for geriatric major depression.[75,78,103]

Cognitive-behavioural therapy combined with desipramine was found to be more effective than desipramine alone in the continuation and maintenance treatment of geriatric depression.[104] Cognitive therapy has also been used successfully to treat suicidal persons,[105,106] including the elderly. The 'cognitive constriction'[107] that narrows and devalues options is challenged during cognitive therapy. Cognitive-behavioural therapy identifies the dysfunctional beliefs, which are typically helpless and hopeless in a depressed suicidal person, and the feelings associated with these beliefs, and then directs the patient to use problem-solving methods. By forming a more precise description of the problem, separating the problem from depressed mood, breaking down the problem into components, and considering possible solutions, suicide ceases to be the only option. These findings suggest that brief psychotherapies are effective in preventing relapse and recurrence of geriatric depression.

Older individuals who committed suicide were found to have rigid character and low openness to experience.[108] For elderly men especially, it is often unacceptable to express their dependency needs, and the loss of work, health and mental capacity may trigger a narcissistic crisis, so it is conceivable

that longer-term psychodynamic therapies that address these issues may also be helpful to treat suicidal elderly. Finally, suicidal crisis can hardly ever be resolved without the involvement of the patient's support system.

6. Prevention of Suicidal Behaviour

Although we do not have direct evidence from treatment trials that treatment of depression reduces suicide rate, indirect evidence suggests that the availability of trained professionals might influence suicide rates. In the US, Nevada and Montana have the highest suicide rates, and rank at the bottom with respect to the number of active psychiatrists, psychologists, social workers and psychiatric nurses.[109] In Hungary, the more than 2-fold difference between the suicide rates in different counties is negatively associated with the rates of diagnosed depression and the number of working psychiatrists.[110] Emergency telephone services may reduce the suicide mortality in a given region. In the US, regions with higher density of suicide prevention centres showed smaller increases in suicide rates than other regions over a 10-year period.[109] However, the effect of these services on suicide prevention is limited because patients with depression or schizophrenia do not frequently contact these services.[111]

In the Swedish island of Gotland, a study was carried out between 1984 and 1986 to test whether education of primary care physicians can improve treatment of depression and reduce suicide rates.[112] After completing the training programme, primary care physicians were more likely to prescribe antidepressants and less likely to prescribe anxiolytics. The rate of hospital admission for depression and the suicide rate decreased during the study. Of note, this decrease in suicides was due to a decrease in suicides among women with depression.[110] The rate of suicides increased 2 years after the completion of the training programme. The meaning of this study has been debated. Critics point to the limited number of suicides, making it difficult to draw definite conclusions. For instance, the drop in suicide rates may have been the result of spontaneous fluctuations rather than to the intervention *per se*.

The Hampshire Depression Project[113] also investigated the effectiveness of an educational program delivered to primary care physicians. Outcome measures were recognition of depression and improvement of depression at 6 weeks and 6 months. There were no differences in the above-mentioned measures regardless of whether patients were treated by primary care physicians who participated in the education program or those who did not.

Currently, two suicide prevention studies are underway to detect the effectiveness of improved treatment of depression by primary care physicians. The US National Institute of Mental Health-sponsored multisite 'Prevention of Suicide in Primary Care Elderly Collaborative Trial' (PROSPECT) specifically targets a geriatric population.[114] The goal of PROSPECT is to determine if, as hypothesised, placement of non-physician depression care managers in primary care practices will have a favourable impact on rates of depression, hopelessness and suicidal ideation in primary care patients with major depression, dysthymic disorder or persistent minor depression. PROSPECT randomly assigns practices to either an 'intervention arm' or to a 'treatment as usual arm'. A total of 18 practices are participating, with a goal of recruiting 600 patients with depression. Patients aged 75 years and older are being oversampled because the highest suicide rate occurs in males in this age group. Three hundred patients in the intervention practices will receive acute, continuation and maintenance treatment (pharmacotherapy, interpersonal psychotherapy) provided by depression care managers. The primary outcome measures, assessed every 4 months for 2 years, are measures of depressive symptoms, hopelessness and suicidal ideation/intent/behaviour.

The Hungarian 'Prototype Depression Program in Eastern Europe: A Pilot Project in the Region of Kiskunhalas' aims at reducing suicide rate by improving the treatment of depression and of substance abuse.

These studies build on the experience of previous trials. The Hampshire study[113] showed that both recognition and state-of-the art treatment of depression are necessary first steps but that they are not sufficient; patient compliance with treatment also needs to improve. The Gotland study[112] showed that suicidal men often remain undiagnosed and undertreated, as depression in men is often masked by comorbid alcohol dependence. We have also learned that temporary campaigns are not sufficient, and that long-term programmes are needed for long-lasting effects.

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