

Review

Depression in the Elderly—Epidemiology, Diagnosis, Special Aspects, and Treatment Options

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Abstract

The prevalence of Late-life Depression (LLD) has been estimated between 10% and 15%. Therefore, it is a considerable worldwide problem. The psychopathology is not substantially different from that of depressive episodes in young adults but somatic complaints in combination with end-of-life perspective leave an imprint on emotional experience. The frequent suicidal tendency, especially in old unmated men, remains a particular challenge. It is important to combine psychiatric and somatic diagnostics using modern methods such as cMRT (magnetic resonance tomography) or extensive clinical laboratory to exclude organic underlying diseases. The treatment is a multidisciplinary approach and includes biological, psychotherapeutic and physiotherapeutic or socio-therapeutically methods. Modern antidepressants and augmentation strategies allow treating the old-aged population with sufficient safety, tolerability, and therapeutic efficiency.

Keywords

Late-life depression (LLD); diagnostics; somatic disease; suicidality; treatment options



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1. Introduction

Apart from dementia, depression is one of the most common mental illnesses in old age. Owing to the complex interactions between somatic and psychological problems in aged patients, depression has often been underestimated [1, 2]. A special aspect of geriatric depression is the risk of suicide, which increases with age, especially in unmated men. In general, the psychopathology of depression in old age does not substantially differ from depression in younger years but there are some special features that can lead to depression, often being overseen or diagnosed late in old age. Pharmacokinetic and pharmacodynamic alterations must be monitored by applying therapeutic approaches. This mini-review would summarize some noteworthy characteristics and emphasize the general signs of geriatric depression seen by family physicians and other specialists.

2. Epidemiology

The frequency and symptoms of depression in old age are not substantially different from those in the young aged population.

Severe depression is not more common in old age, and according to some studies even less than in younger adulthood. According to a study with adults in Germany [DSM-IV criteria, Patient Health Questionnaire 9 and standardized interview: Composite International Diagnostic Interview] carried out by the Robert Koch Institute, the overall prevalence was 8.1% in those aged 18 to 79 years, being slightly increased in women (10.2%). If only 70- to 79-year-olds are considered, the figure is 6.1%, being a little more frequent in women (7.7 versus 4.2%). However, mild depression or depression in which all symptoms are not manifested (so-called subclinical depression) may be two to three times more common in older people. The highest figure was found for people aged 60–69 years (17.3%), being slightly more frequent in women [3]. These disorders are reasonably associated with a significant impairment of health, loss of subjective well-being and quality of life. However one should keep in mind that the prevalence could substantially vary between regions due to different local factors [4]. The prevalence in late-life depression was twice in southern Europe compared to Scandinavia. In a recent study, the prevalence of LLD in Brazil was approximately 11.1% in patients over 75 years, which was quite similar to the prevalence reported in Europe [5].

Although the physical disease correlates with a higher incidence of depression, it is not easy to answer the question in an individual how and to which extent physical diseases, which occur more frequently in old age, lead to depression [6]. For example, typical symptoms of depression, such as sleep or drive disorders, exhaustion or pain, can also occur in connection with a physical illness without an independent depressive disorder. The association between pain and depression is well established and requires both diagnostic and therapeutic diligence [7]. Therefore, depression in the elderly is a real challenge in clinical practice [1].

Nonetheless, many people show some characteristics of depression or "old-age depression" thus they should be carefully examined in either out-patient or in-house facilities. People suffering from depression tend to perceive existing problems more strongly and as more threatening with regard to life quality. Whereas in younger phases of life, work-related problems are dominant, while in retired people health-related problems usually dominate [8]. In extreme cases, the

depression may be even hidden by somatic symptoms such as cardiovascular complaints, pain, or functional impairment; this is also known as somatic or masked depression (ICD 10 F32.8).

The leading symptoms of depression are, for example, fatigue, loss of appetite, insomnia, pain of various regions or joints, psychomotoric slowing, and digestive problems. Women may more often complain of somatic symptoms [9]. The concentration and perception disorders associated with depression provoke concerns of possibly having Alzheimer's disease. Pseudodementia combined with the fear to get dementia can be a real problem that should be carefully assessed. Generally, a depressive patient will probably be reluctant to go through all diagnostic requirements. If the doctor does not ask about the psychological symptoms of depression, such as hopelessness, thoughts of suicide, and feelings of guilt in these conditions, the depression can be overlooked as the underlying disease. It is very important to ask the patient for recurrent episodes in the past including course and duration. There is no special gender-specific psychopathology but men more frequently complain of anger or apathy or anhedonia, whereas women exhibit sorrow, dysphoria, and sadness [9]. In some studies, the prevalence of sleeping troubles was found to be 97% and in back pain was 42%, which underlines the importance of somatic assessment [10]. A clinical observation following these findings is that elderly patients have problems to accept psychiatric disorders apart from the "somatic" or physical symptoms.

Special aftermath of depression is broken heart syndrome, also called Tako-tsubo syndrome [11]. In this entity, depressive syndrome leads to potentially fatal cardiac impairment. In this situation cooperation between psychiatrists and cardiologists is essential to prevent the patient from a serious outcome. One should always be aware that somatic diseases such as cancer, neurological diseases, infections, endocrinological or metabolic disorders, or (auto-) immunological diseases also cause some level of depression ("organic or symptomatic psychic disorders"). These diseases are classified according to ICD 10 as F06.3 [12, 13]. Somatic diseases including brain affections can cause or mimic almost all kinds of psychiatric disorders, which should also be kept in mind (ICD 10: F04, F05, F06, F07).

3. Diagnostics

The basic diagnosis of depression is carried out by a doctor or therapist by means of the psychopathology findings. The questionnaire "Geriatric Depression Scale" (GDS) has been developed especially for elderly patients and supports the diagnostic procedure [14]. It contains 15 dichotomic questions and reflects mild depression when score is 5–10 and severe depression when score is 11–15. With regard to cognitive impairment, the Cornell Scale for Depression in Dementia (CSDD) may be more appropriate [15]. The items of CSDD are ranked as absent, mild, and severe, and it can be completed in 20 minutes. The items cover affective, behavioral, physical, circadian, and ideational symptoms. The cut-off score for depression is 12 and maximum points are 38. Additional assessment of cognitive function by means of the Mini-Mental-Status-Test, Clocktest or equivalent tests may be helpful. The Patient Health Questionnaire (PHQ) allows assessing a broad range of symptoms and syndromes including depression with different versions [10, 16].

Routine physical examination is a must in every patient. If a person at an advanced age develops a depressive disorder for the first time, special attention must be paid to possible physical illnesses that may be associated with it. With an examination of the brain (e.g., by cMRT.

CCT) or a careful laboratory diagnosis for vitamin status, inflammatory, metabolic or rheumatic disease, as well as endocrinological disorders such as thyroid diseases should be carried out [15, 17]. An ECG or EEG should be done before the start of treatment. Encephalopathies will require investigation of cerebral spinal fluid. Neurosonography, positron-emission-tomography or electrophysiology and echocardiography or chest X-ray could be considered in cases of doubt, preferably after consultation with a specialist. Especially for major depressive disorder or bipolar disorders, a family history (genetic pedigree) is beneficial to get information about heritability. A thorough diagnostic procedure is a basis for a successful therapeutic approach.

4. Differential Diagnosis

Depressive syndromes occur in various psychiatric disorders such as depressive episodes, bipolar disorders, cyclothymia, dysthymia, adjustment disorders or even personality disorders or schizoaffective disorder. The differential diagnosis should include a thorough analysis of psychopathology and the medical history of patient and, if feasible, family history.

Depressive disorders can also have similarities with dementia (depressive pseudodementia) in old age due to speech and thought inhibition (i.e., thinking and speaking are perceived as "slowed" or "blocked"), concentration disorders and complaints by patients about memory disorders. Depressive patients are easily overstrained due to concentration disorders and endurance, which can be expressed in statements such as "I cannot or I do not know".

In old age, the examination often requires differentiation from dementia or mild cognitive disorders. Depressive patients are usually not disoriented, i.e., they can give the correct date and time in response to questions, although they may need more time. This is often no longer the case with dementia patients. When describing their symptoms, depressive patients feel the strain of suffering associated with the bad condition, while patients with dementia more often trivialize symptoms or tend to hide them [1]. An interesting aspect in this regard is the subjective cognitive decline over time, i.e., self-perceptions of change and symptoms at an early stage of a potential neurodegenerative disorder [18].

Other risk factors can be medications such as antipsychotics, beta-blockers and other antihypertensives, steroids, and interferons [19]. It is, therefore, wise to carefully check the medication list. Other risk factors or concomitant diseases are alcoholism, severe somatic diseases such as cancer but also psychiatric co-morbidities such as anxiety disorders [9]. One should not forget social factors and burdens, financial aspects, caregiver burden at home, loss of a loved person or social isolation due to divorce or death [20].

5. Special Aspect: Suicidality

The official death statistics of the German Federal Statistical Office show that the suicide rate, i.e., the number of suicides per 100,000 persons of the respective age group, increases with increasing age. The risk of dying by suicide is, therefore, extremely high, especially in older people. About 35% of all suicides are committed by people over the age of 65. The risk, however, is even higher in unmated old-aged men.

Statistics on suicide in old age must be regarded as an approximation. There are always chances of underestimation due to "silent" or "covert" suicides, i.e., suicide by refusal to eat or failure to take the necessary medication. Furthermore, several borderline cases of fatal accidents and other

unclear causes of death might also be linked with unrecorded suicides. The rate of suicides in the US in older people is very high, i.e., about 49 per 100000 inhabitants [21]. Unfortunately, suicide in aged citizens is a world-wide problem. For comparison, the overall rate of suicides in Germany in 2018 was largely 12 per 100000 inhabitants in 1916 [22, 23].

For caregivers and relatives, it is important to know that suicide is usually the result of psychiatric illness. The doctor must explore for any suicidal intention. Indications of suicidal tendencies (e.g., remarks such as "I cannot go on", "I do not want to go on") should always be taken seriously and addressed. In the case of suicidal thoughts or behavior, a doctor should be consulted. Treating depression, as outlined below, reduces the risk of suicide.

It is often assumed that the presence of a serious physical illness such as stroke, cancer, cardiovascular diseases, diabetes mellitus, high blood pressure, chronic lung diseases or osteoporosis increases the risk of committing suicide. If such diseases were to lead to an increase in suicides, suicide victims would have these diseases more frequently than people who do not commit suicide. A study [24] suggested that the question must be considered in an individual in an illness-related way. Whereas somatic diseases showed odds ratios (OR) between about 0.9 (ischemic heart disease) up to 2 (urinary incontinence), pain yielded an OR of 7.52. In addition, psychiatric disorders such as depression or bipolar disorder revealed an odds ratio of 4.62 for anxiety to even 9.2 for bipolar disorders. One should not forget that there exists an additive effect, i.e., more diseases increase the risk.

This study underlines that the obvious but often premature attribution of despair, suicidal tendencies, and hopelessness to a potentially existing serious physical illness should be taken into consideration. Therefore, it is important to diagnose and adequately treat a depressive disorder in the presence of a severe physical disorder as well.

The reasons for the dramatic increase in suicide risk in older men are not fully understood. One factor could be that depression, especially in older men, is often not or only very inadequately treated. Another aspect may be that men have a high level of testosterone that corresponds to a relative characteristic circannual rhythm [25]. Men often use "hard methods" such as hanging or shooting, whereas women prefer "soft" methods such as intoxication. However, testosterone may not be a major factor in very old men.

Schulte-Wefers und Wolfersdorf (2006) [26] discussed male attitudes and moral concepts such as the desire to dominate or to have power, to possess courage and toughness, independence (of caregivers, etc.) or performance capability. Men tend to think rationally, gain competitive power, give importance to successful life and profession, and attempt to have control or have at least some kind of invulnerability; they also apply the same in case of handicaps or disease.

6. Treatment of Geriatric Depression

The treatment of depressive illness is just as important in older patients as it is in younger people. Both psychotherapy, if feasible, and drug therapy have proven to be effective. Light therapy, occupational strategies or physiotherapy should be proposed to the patient. Social contacts are important to prevent reclusion. Cognitive treatment could be helpful in mild cognitive impairment or related conditions [27]. In resistant cases, electroconvulsive therapy should also be considered after consultation with an internist and anesthesiologist.

There is also some evidence that psychotherapy, especially cognitive behavioral therapy, is also effective in older people, but a Cochrane review classifies the evidence as weak [28]. The proportion of over 60-year-old patients in psychotherapy is still very low, summing up to 25% in the US [29]. Despite the lack of research in the field, psychotherapy should be offered to a patient if available and can be combined with other treatment options. If the patient is motivated for psychotherapy, the physician should support an appointment with a psychotherapeutic colleague in due time.

The clinical pharmacology in the elderly has some peculiarities, which should be observed [30]. Apart from reduced renal clearance, the old aged patients often have a lower body mass, reduced cardiac output, lower breathing capacity, absorption, or metabolic rates [31]. Pharmacodynamics, e.g., the number of β -receptors, can be reduced as well as neurotransmitter release and albumin or protein concentration might also be hampered. Body water and body mass are reduced which could influence distribution processes. Katzung (2009) [31] proposed low starting doses and careful titration up to a desirable effect ("start low, go slow"). The intervals between dose increments should not be less than three half-lives.

In drug therapy, the careful selection of the antidepressant by the doctor is important, as several drugs might be taken simultaneously and there can be interactions between them. Even though drug treatment is more complicated in older people, it is particularly important. Depression is a life-threatening disease in old age, even more than that in younger people. Bedriddenness reduces fluid intake and, above all, a drastically increased risk of suicide in older men are the factors that require particularly consistent treatment in the case of age-related depression. One must also take into consideration somatic diseases, age factor, and renal clearance per se.

SSRIs (Selective serotonin-reuptake inhibitors, e.g., sertraline, escitalopram) are the drugs of choice [9, 30]. However due to polypharmacy in the old aged, one should use interaction checker (e.g. Drugs.com interaction checker, Medscape interaction checker) software in cases of doubt. Sodium, ECG (QT-time) or cardiac complaints, sexual problems, and Parkinson-like symptoms should be monitored on a regular basis, e.g., at every three months. Diarrhea may be an uncomfortable side-effect. The two adverse events that can be serious are upper gastrointestinal bleeding and the serotonin syndrome. The co-administration of anticoagulants or serotonergic drugs such as some opiates (e.g., fentanyl) or mono-amino-oxidase inhibitors (MAOIs) would increase the total risk of adverse events.

SNRIs (Serotonin-noradrenalin-reuptake inhibitors) such as venlafaxine, duloxetine or milnacipran can be used in geriatric patients; however, blood pressure should be monitored carefully. Weight loss, hyponatremia, unrest, or insomnia may occur and can require symptomatic intervention.

In cases of insomnia or restlessness, mirtazapine in doses between 7.5 to 45 mg (NaSSA, noradrenergic and specific serotonergic antidepressant, "tetracyclic") is suitable for the elderly. Bupropion, a noradrenaline and dopamine reuptake inhibitor (NDRI), may be an alternative, but the physician should be cautioned in the case of epilepsy and tamoxifen (or related drugs) interaction in case of breast cancer. Also the inhibition of CYP2D6 (metoprolol) must be taken into consideration [32]. The serotonin modulator vortioxetin that primarily inhibits the 5-HT-transporter and modulates serotonergic receptor activity may be taken with some reservation (combination with serotonergic drug, CYP2D6 metabolism) as a convenient strategy.

Unfortunately, the drug has been withdrawn from the German market [32]. Reboxetine (noradrenaline reuptake inhibitor, NARI) could be the second line option but the rise in blood pressure and urinary retention, as well as CYP3A4 metabolism, should be observed [32].

Thiaheptane may be a further alternative to treat elderly patients [30]. The mechanism of the drug is not understood yet, but the serotonin re-uptake enhancing effect (SRE) is a unique characteristic of the drug compared to other antidepressants [32] and it also possesses μ -agonistic effects. The advantages are the lack of anticholinergic or antihistaminergic activity. In the case of substance addiction, the patient should be carefully monitored. Furthermore, selective reversible MAOIs type A (moclobemide) could be administered to elderly population [30]. However, any combination with food rich in tyramine or with serotonergic drugs such as SSRI, linezolid or triptans should be avoided.

In principle, other classical antidepressants such as tricyclics (e.g., amitriptyline) or nonselective irreversible MAOIs (Phenelzine) can be used as well, but they require careful assessment of side-effects, particularly controlling QT-interval, constipation, and blood pressure. One should take into consideration the high risk of these drugs during the “first hour” in case of intoxication [9]. In the case of phenelzine, a strict diet low in tyramine must be maintained.

In case of resistance to treatment, one can switch to an antidepressant with a different pharmacologic profile. Another strategy may be a combination of the second antidepressant or classical augmentation [33, 34]. Venlafaxine plus mirtazapine may be an option particularly. However, the latter may exert sleep-inducing effect [32] and its clinical outcome is not assured [33]. Lithium is effective but requires continuous drug monitoring and assessment of renal thyroid function. A combination with a low dose of an atypical antipsychotic (e.g., aripiprazole) could be considered due to its convenient handling and may improve the outcome of the depression [35].

Depression in the elderly is a frequent disorder with a relevant impact on life quality and perspectives, especially with regard to suicidality. Improving diagnostic and therapeutic approaches remains an important issue in psychiatry. An arsenal of pharmacological and non-pharmacological strategies is available that can be useful in late-life depression.

Author Contributions

Horst J. Koch was the solo author.

Competing Interests

The author has declared that no competing interests exist.

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