

A 95-year-old man with treatment-resistant depression

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Mr. R, age 95, presents with depressive symptoms that began 6 weeks ago. He recently has lost 20 lb and is rapidly deteriorating. Which treatment would you recommend?



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CASE Depressed, avoidant

Mr. R, age 95, has a history of recurrent major depressive disorder. He presents to the emergency department with depressive symptoms that began 6 weeks ago. His symptoms include depressed mood, hopelessness, anhedonia, anxiety, and insomnia. Co-occurring anorexia nervosa has resulted in a 20-lb weight loss. He denies suicidal ideation.

A mental status examination reveals profound psychomotor agitation, dysphoric mood, tearfulness, and mood-congruent delusions. Mr. R's Mini-Mental State Examination (MMSE) score is 14/30; his Hamilton Depression Rating Scale (HAM-D) score is 21, indicating severe depression (19 to 22). However, the examiner feels that these scores may not reflect an accurate assessment because Mr. R gave flippant responses and did not cooperate during the interview. Physical examination is unremarkable. Previous medication trials included buspirone, escitalopram, and risperidone; none of these medications successfully alleviated his depressive symptoms.

On admission, Mr. R is given oral mirtazapine, 15 mg/d, and quetiapine, 25 mg/d, to target depressive mood, insomnia, and weight loss. Urgent intervention is indicated because his depressive symptoms are profoundly causing failure to thrive and are compromising his physical health. Mr. R's deterioration concerns the physician

team. Because of a history of failed pharmacotherapy trials, the team reassesses Mr. R's treatment options.

Which treatment would you recommend for Mr. R?

- increase the dosage of his current antidepressants
- continue the same pharmacotherapy
- provide deep brain stimulation
- initiate electroconvulsive therapy (ECT)

The authors' observations

The physician team recommends that Mr. R undergo ECT to obtain rapid relief from his depressive symptoms. After discussion of the potential risks and benefits, Mr. R agrees to this treatment. Quetiapine is discontinued prior to initiating ECT to avoid unnecessary medications; mirtazapine is continued.

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Disclosures

The authors report no financial relationships with any companies whose products are mentioned in this article or with manufacturers of competing products.

Table

Indications for ECT

Severe depression
Suicide risk
Mania
Psychosis of schizophreniform disorders
Good response to previous ECT
Pharmacologic intolerance or poor response
Catatonia
Neuroleptic malignant syndrome
ECT: electroconvulsive therapy
Source: Reference 14

Clinical Point

When treated with ECT, older patients have fewer subsequent episodes of depression than those who receive pharmacotherapy alone

Mr. R's lack of response to previous antidepressants and significant deterioration were concerning. The physicians wanted to avoid higher-dose medications because of the risk of falls or somnolence. Their clinical experience and the literature supporting ECT for patients of Mr. R's age lead them to select ECT as the most appropriate therapeutic option.

ECT has no absolute contraindications.¹ The rate of ECT use in the United States has fluctuated over time because of factors unrelated to the efficacy and availability of ECT or alternative treatments.² This form of intervention is also somewhat stigmatized.

Some psychiatrists are reluctant to prescribe ECT for geriatric patients because of concerns of potential neurocognitive or medical complications and risks during anesthesia. However, in the United States, older patients with depression are more likely to be treated with ECT than their younger counterparts.³ ECT usually induces greater immediate efficacy than antidepressants.⁴

Evidence supports using ECT in older patients

Multiple studies have found that ECT is a rapid, safe, and efficacious intervention for treating older persons with depression. Patients age >60 who receive ECT plus pharmacotherapy have lower HAM-D scores than those receiving

pharmacotherapy alone.⁵ Overall, the rates of remission for depression range from 50% to 70%; yet geriatric patients who receive only ECT have response rates around 90%.⁶ Older age, presence of psychotic symptoms, and shorter duration of illness can predict a rapidly positive ECT response.⁷

When treated with ECT, older patients, including those age >85, have fewer subsequent episodes of depression compared with those who receive pharmacotherapy alone.¹ Older individuals with physical illness or cognitive impairment respond to and tolerate ECT much like younger patients.⁶ Older patients receiving ECT may experience less cognitive decline than younger ones.⁷ Those in their ninth decade of life with treatment-resistant depression, psychotic features, and post-stroke depression often respond robustly with improvement following ECT.⁸

Remission rates also depend on the technique of administration. Interactions between electrode placement and stimulus parameter dosage affect efficacy and adverse effects.⁹ Right-sided, unilateral ECT induces less cognitive dysfunction compared with bilateral electrode placement,⁹ but bilateral ECT is more clinically effective.¹⁰ However, the efficacy of right-sided ECT is more dose-sensitive, and some data suggest that suboptimal response is due to insufficient stimulus dosages.¹¹ One double-blind randomized controlled trial documented that when using a high-dose stimulus parameter, unilateral ECT is as effective as bilateral ECT.¹² When there is a suboptimal response to unilateral ECT, bilateral ECT might be beneficial.^{12,13} For preventing relapse in older patients, increasing the interval between ECT treatments is more effective than stopping ECT abruptly.¹³

Which is the most common indication for ECT in older adults?

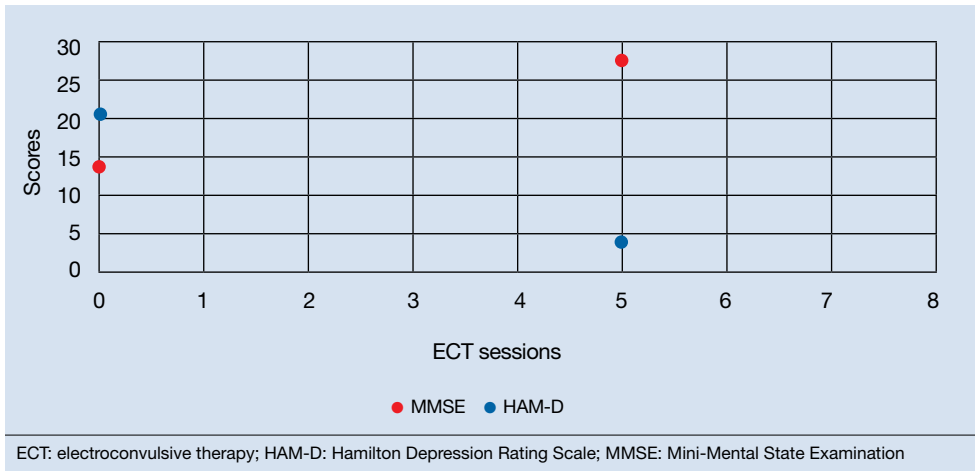
- mania
- treatment-resistant depression
- borderline personality disorder
- catatonia



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Figure

Mr. R's MMSE and HAM-D scores during ECT



Indications of ECT

ECT is indicated for patients with severe depression, mania, and other conditions (Table, page 50).¹⁴ The most common indication for ECT in older persons is a history of treatment-resistant depression, with melancholia, psychosis, or suicidal ideations.^{1-6,12} There are also age-related and clinical factors to consider with ECT. This treatment provides a safe, rapid remission for patients age >65, even after adjusting for somatic conditions, duration of illness, medication resistance, or case severity.¹⁵ Compared with younger patients, older adults may not tolerate antidepressants as well because of age-related pharmacokinetic alterations, including increased sensitivity to anticholinergic and/or hypotensive effects.¹

Factors that favor ECT include a previous good response to it; patient preference; and an indication for rapid intervention, such as suicidality, catatonia, dehydration, malnutrition, or a suboptimal result from pharmacotherapy.³ Mortality among individuals age >85 who receive ECT reportedly is lower than that among their counterparts who receive alternative treatments.¹⁶ ECT has been administered safely and effectively

in patients with comorbid medical illnesses such as stroke, cerebral aneurysm, cardiovascular disease with ischemia or arrhythmia, dementia, and osteoporosis.¹⁷

Neurocognitive effects

Reports on the effects of ECT on neurocognitive functioning have varied. In some studies, performance improved or did not change in severely depressed older patients who received ECT.^{18,19} In older people who receive ECT, MMSE scores often return to baseline by the end of treatment.²⁰ There often is only mild transient cognitive impairment in patients with late-life depression who receive ECT. Areas of concern include attention span, orientation, and speed of mental processing.²⁰ Physicians should conduct cognitive tests before, during, and after ECT sessions to monitor their patient's mental status.²⁰

Cognitive stability can be maintained by administering ECT twice a week; applying right-sided, unilateral electrode placement; and using short, ultra-brief stimulus pulse width parameters.²¹ Cognitive impairment induced by ECT is not associated with age in geriatric patients with depression.²² Older adults who experienced longer

Clinical Point

ECT has been administered safely and effectively in patients with comorbid medical illnesses

Clinical Point

Cognitive impairment induced by ECT is not associated with age in geriatric patients with depression

Related References

- Salzman C, Wong E, Wright BC. Drug and ECT treatment of depression in the elderly, 1996-2001: a literature review. *Biol Psychiatry*. 2002;52(3):265-284.
- Blumberger DM, Hsu JH, Daskalakis ZJ. A review of brain stimulation treatments for late-life depression. *Curr Treat Options Psychiatry*. 2015;2(4):413-421.

Drug Brand Names

Buspirone • Buspar	Quetiapine • Seroquel
Escitalopram • Lexapro	Risperidone • Risperdal
Mirtazapine • Remeron	

postictal reorientation time periods have better outcomes than others who reach orientation faster; their intellectual impairment returned to baseline.²⁰

Falling is another complication associated with ECT. A longitudinal cohort study found the incident of falls among patients receiving ECT was 13%.²² Risk factors for falls during a course of ECT include the number of treatments and the presence of coexisting Parkinson's disease.²³

OUTCOME Improvement

Mr. R receives 8 sessions of right-sided, unilateral ECT with an individualized dosage titration method. Treatments are completed with a stimulus intensity at 6 times seizure threshold, with an ultra-brief pulse width at 0.3 milliseconds. Mr. R's mood and affect begin to improve after 3 ECT sessions. His MMSE score increases to 28/30 (**Figure, page 51**). His clinical improvement is progressively sustained; he develops an increasingly jovial attitude and experiences less anxiety. Mr. R's confidence, appetite, and sleep also improve. There are no

complications with treatment, and Mr. R has no complaints. After 8 ECT sessions, Mr. R has no affective symptoms and does not experience any cognitive impairment.

The authors' observations

Depression among older people is a growing public health concern. It is a leading cause of disability, and often leads to nursing home placement.²⁴ ECT is a safe, effective treatment for late-life depression, but is underutilized in patients age >75 because of concerns for cognitive impairment.⁶ However, there is evidence that response rates to ECT are higher in patients ages 45 to 85, compared with young individuals ages 18 to 45.²⁵ ECT is a viable intervention for older depressed patients, particularly for those who do not tolerate or fail to respond to pharmacotherapy. Many of these patients are at risk for drug-induced toxicities or interactions or suicide.¹

References

1. Kerner N, Prudic J. Current electroconvulsive therapy practice and research in the geriatric population. *Neuropsychiatry (London)*. 2014;4(1):33-54.
2. Dombrowski AY, Mulsant BH. The evidence for electroconvulsive therapy (ECT) in the treatment of severe late-life depression. ECT: the preferred treatment for severe depression in late life. *Int Psychogeriatr*. 2007;19(1):10-14,27-35; discussion 24-26.
3. Olfson M, Marcus S, Sackeim HA, et al. Use of ECT for the inpatient treatment of recurrent major depression. *Am J Psychiatry*. 1998;155(1):22-29.
4. Salzman C, Wong E, Wright BC. Drug and ECT treatment of depression in the elderly, 1996-2001: a literature review. *Biol Psychiatry*. 2002;52(3):265-284.
5. Kellner CH, Husain MM, Knapp RG, et al; CORE/PRIDE Work Group. A novel strategy for continuation ect in geriatric depression: phase 2 of the PRIDE study. *Am J Psychiatry*. 2016;173(11):1110-1118.
6. Tew JD Jr, Mulsant BH, Haskett RF, et al. Acute efficacy of ECT in the treatment of major depression in the old-old. *Am J Psychiatry*. 1999;156(12):1865-1870.

Bottom Line

Electroconvulsive therapy (ECT) is a safe, effective treatment for depression. Although there are only a few case reports of patients in their 90s who have received ECT, evidence supports ECT as an appropriate intervention for geriatric patients with depression.

7. Dombrowski AV, Mulsant BH, Haskett RF, et al. Predictors of remission after electroconvulsive therapy in unipolar major depression. *J Clin Psychiatry*. 2005;66(8):1043-1049.
8. Charles K. UpToDate. Unipolar major depression in adults: indications for efficacy of electroconvulsive therapy (ECT). <https://www.uptodate.com/contents/unipolar-major-depression-in-adults-indications-for-and-efficacy-of-electroconvulsive-therapy-ect>. Updated May 16, 2017. Accessed November 26, 2017.
9. Sackeim HA, Prudic J, Devanand DP, et al. A prospective, randomized, double-blind comparison of bilateral and right unilateral electroconvulsive therapy at different stimulus intensities. *Arch Gen Psychiatry*. 2000;57(5):425-434.
10. UK ECT Review Group. Efficacy and safety of electroconvulsive therapy in depressive disorders: a systematic review and meta-analysis. *Lancet*. 2003;361(9360):799-808.
11. Lisanby SH. Electroconvulsive therapy for depression. *N Engl J Med*. 2007;357(19):1939-1945.
12. Stoppe A, Louzā M, Rosa M, et al. Fixed high dose electroconvulsive therapy in elderly with depression: a double-blind, randomized comparison of efficacy and tolerability between unilateral and bilateral electrode placement. *J ECT*. 2006;22(2):92-99.
13. Geduldig ET, Kellner CH. Electroconvulsive therapy in the elderly: new findings in geriatric depression. *Curr Psychiatry Rep*. 2016;18(4):40.
14. Practice guideline for the treatment of patients with major depressive disorder (revision). American Psychiatric Association. *Am J Psychiatry*. 2000;157(suppl 4):1-45.
15. Rhebergen D, Huisman A, Bouckaert F, et al. Older age is associated with rapid remission of depression after electroconvulsive therapy: a latent class growth analysis. *Am J Geriatr Psychiatry*. 2015;23(3):274-282.
16. Philibert RA, Richards L, Lynch CF, et al. Effect of ECT on mortality and clinical outcome in geriatric unipolar depression. *J Clin Psychiatry*. 1995;56(9):390-394.
17. Tomac TA, Rummans TA, Pileggi TS, et al. Safety and efficacy of electroconvulsive therapy in patients over age 85. *Am J Geriatr Psychiatry*. 1997;5(2):126-130.
18. Verwijk E, Comijs HC, Kok RM, et al. Short and long-term neurocognitive functioning after electroconvulsive therapy in depressed elderly: a prospective naturalistic study. *Int Psychogeriatr*. 2014;26(2):315-324.
19. Flint AJ, Gagnon N. Effective use of electroconvulsive therapy in late life depression. *Can J Psychiatry*. 2002;47(8):734-741.
20. Bjolseth TM, Engedal K, Benth JS, et al. Speed of recovery from disorientation may predict the treatment outcome of electroconvulsive therapy (ECT) in elderly patients with major depression. *J Affect Disord*. 2016;190:178-186.
21. Sackeim HA, Prudic J, Nobler MS, et al. Ultra-brief pulse ECT and the affective and cognitive consequences of ECT. *J ECT*. 2001;17(1):77.
22. Bjolseth TM, Engedal K, Benth JS, et al. Baseline cognitive function does not predict the treatment outcome of electroconvulsive therapy (ECT) in late-life depression. *J Affect Disord*. 2015;185:67-75.
23. de Carle AJ, Kohn R. Electroconvulsive therapy and falls in the elderly. *J ECT*. 2000;16(3):252-257.
24. Hoover DR, Siegel M, Lucas J, et al. Depression in the first year of stay for elderly long-term nursing home residents in the USA. *Int Psychogeriatr*. 2010;22:1161.
25. O'Connor MK, Knapp R, Husain M, et al. The influence of age on the response of major depression to electroconvulsive therapy: a C.O.R.E. Report. *Am J Geriatr Psychiatry*. 2001;9:382.

Clinical Point

Response rates to ECT are higher in individuals ages 45 to 85 compared with individuals ages 18 to 45