## **Treatment of refractory depression**



Options explicitly not considered by Maudsley Prescribing Guidelines (14th edition) in Psychiatry, compared to ECT.

Treatment	Advantages	Disadvantages	Refs
ECT	<ul> <li>Well established</li> <li>Effective</li> <li>Well supported in the literature</li> <li>Speed of response, eg high suicidality</li> </ul>	<ul> <li>Poor reputation in public domain</li> <li>Necessitates general anaesthetic</li> <li>Needs specialist referral</li> <li>Relative contraindications if physical comorbidity eg recent MI, arrhythmias, cerebral aneurysm</li> <li>Usually combined with other treatments</li> <li>Cognitive problems, particularly retrograde amnesia</li> <li>Maintenance requirements</li> <li>Mortality rate 1:50,000</li> </ul>	1-5
Psychological approaches	<ul> <li>Well established</li> <li>Effective</li> <li>Well supported by the literature</li> <li>No medication</li> <li>Outpatient procedure</li> <li>No side effects</li> </ul>	<ul> <li>Cultural/language barriers</li> <li>Some patients too ill to engage</li> <li>Substantial time commitment</li> <li>Stigma around seeking therapy</li> <li>Waiting lists</li> <li>Lack of immediate results</li> <li>Potential for negative emotional experiences</li> </ul>	6-10
rTMS	<ul> <li>Effective</li> <li>Well supported by the literature</li> <li>No medication</li> <li>Outpatient procedure</li> <li>Minimal side effects</li> <li>Safe with physical comorbidities and pregnancy</li> </ul>	<ul> <li>Time requirement</li> <li>Maintenance requirements</li> <li>Limited availability</li> </ul>	11-17
Vagus Nerve Stimulation	Long term effect	<ul> <li>Surgical procedure</li> <li>Used as adjunct to TAU</li> <li>Slow onset of effect</li> <li>Limited evidence</li> <li>Side effects</li> <li>Expensive</li> </ul>	18-20
Deep brain stimulation	<ul> <li>Applicable to very severe depression</li> <li>Adjustable stimulation levels</li> </ul>	<ul> <li>Surgical procedure</li> <li>Maintenance requirements</li> <li>Side effects</li> <li>Not part of NICE depression pathway</li> <li>Expensive</li> </ul>	21-24
Psychosurgery	Applicable to very severe depression	<ul> <li>Surgical procedure</li> <li>Potential for irreversible changes to cognitive function, personality, behaviour and emotional experiences</li> <li>Lack of evidence</li> <li>Not part of NICE depression pathway</li> <li>Expensive</li> </ul>	25-27



## References

- The use of electroconvulsive therapy Understanding NICE guidance information for service users, their advocates and carers, and the public National Institute for Clinical Excellence NHS Update. (2003). <a href="https://www.nice.org.uk/guidance/ta59/resources/the-use-of-electroconvulsive-therapy-pdf-371522989">https://www.nice.org.uk/guidance/ta59/resources/the-use-of-electroconvulsive-therapy-pdf-371522989</a>
- National Institute for Clinical Excellence. (2003). Guidance on the Use of Electroconvulsive Therapy (Technology Appraisal TA59).
- 3. Weiner, R. D., & Reti, I. M. (2017). Key updates in the clinical application of electroconvulsive therapy. International Review of Psychiatry, 29(2), 54-62.
- 4. Lin, C. Y., Chen, I. M., Tsai, H. J., Wu, C. S., & Liao, S. C. (2020). Effectiveness of electroconvulsive therapy on treatment-resistant depressive disorder: A population-based mirror- image study. Journal of psychiatric research, 121, 101-107.
- 5. Subramanian, S., Lopez, R., Zorumski, C. F., & Cristancho, P. (2022). Electroconvulsive therapy in treatment resistant depression. Journal of the Neurological Sciences, 434, 120095
- 6. Ijaz, S., Davies, P., Williams, C. J., Kessler, D., Lewis, G., & Wiles, N. (2018). Psychological therapies for treatment-resistant depression in adults. Cochrane database of systematic reviews, (5).
- 7. Li, J. M., Zhang, Y., Su, W. J., Liu, L. L., Gong, H., Peng, W., & Jiang, C. L. (2018). Cognitive behavioural therapy for treatment-resistant depression: A systematic review and meta-analysis. Psychiatry research, 268, 243-250.
- 8. Zakhour, S., Nardi, A. E., Levitan, M., & Appolinario, J. C. (2020). Cognitive-behavioral therapy for treatment-resistant depression in adults and adolescents: a systematic review. Trends in psychiatry and psychotherapy, 42, 92-101.
- 9. Rogan, T., & Wilkinson, S. T. (2023). The Role of Psychotherapy in the Management of Treatment Resistant Depression. Psychiatric Clinics.
- 10. La Roche, M. J., & Maxie, A. (2003). Ten considerations in addressing cultural differences in psychotherapy. Professional Psychology: Research and Practice, 34(2), 180.
- 11.Li, H., Cui, L., Li, J., Liu, Y., & Chen, Y. (2021). Comparative efficacy and acceptability of neuromodulation procedures in the treatment of treatment-resistant depression: a network meta-analysis of randomized controlled trials. Journal of affective disorders, 287, 115-124.
- 12. Dalhuisen, I., Ackermans, E., Martens, L., Mulders, P., Bartholomeus, J., de Bruijn, A., & Tendolkar, I. (2021). Longitudinal effects of rTMS on neuroplasticity in chronic treatment-resistant depression. European Archives of Psychiatry and Clinical Neuroscience, 271, 39-47.
- 13.13. Gaynes, B. N., Lloyd, S. W., Lux, L., Gartlehner, G., Hansen, R. A., Brode, S., ... & Lohr, K. N. (2014). Repetitive transcranial magnetic stimulation for treatment-resistant depression: a systematic review and meta-analysis. The Journal of clinical psychiatry, 75(5), 29758.
- 14.1Benadhira, R., Thomas, F., Bouaziz, N., Braha, S., Andrianisaina, P. S. K., Isaac, C., ... & Januel, D. (2017). A randomized, sham-controlled study of maintenance rTMS for treatment-resistant depression (TRD). Psychiatry research, 258, 226-233.
- 15. George, M. S., Taylor, J. J., & Short, E. B. (2013). The expanding evidence base for rTMS treatment of depression. Current opinion in psychiatry, 26(1), 13.
- 16. Voineskos, D., Blumberger, D. M., Rogasch, N. C., Zomorrodi, R., Farzan, F., Foussias, G., ... & Daskalakis, Z. J. (2021). Neurophysiological effects of repetitive transcranial magnetic stimulation (rTMS) in treatment resistant depression. Clinical Neurophysiology, 132(9), 2306-2316.
- 17. Somani, A., & Kar, S. K. (2019). Efficacy of repetitive transcranial magnetic stimulation in treatment-resistant depression: the evidence thus far. General psychiatry, 32(4).
- 18. Holtzheimer, P. E., & Avery, D. H. (2005). Focal brain stimulation for treatment-resistant depression: Transcranial magnetic stimulation, vagus-nerve stimulation, and deep-brain stimulation. Primary psychiatry, 12(2), 57.
- 19. Gitlin, M. J. (2009). Pharmacotherapy and other somatic treatments for depression. Handbook of depression, 2, 554-585.
- 20. Pigato, G., Rosson, S., Bresolin, N., Toffanin, T., Sambataro, F., Olivo, D., ... & D'Avella, D. (2023). Vagus nerve stimulation in treatment-resistant depression: A case series of long-term follow-up. The journal of ECT, 39(1), 23-27.
- 21. Blomstedt, P., Sjöberg, R. L., Hansson, M., Bodlund, O., & Hariz, M. I. (2011). Deep brain stimulation in the treatment of depression. Acta Psychiatrica Scandinavica, 123(1), 4-11.
- 22. Delaloye, S., & Holtzheimer, P. E. (2022). Deep brain stimulation in the treatment of depression. Dialogues in clinical neuroscience.
- 23. Morishita, T., Fayad, S. M., Higuchi, M. A., Nestor, K. A., & Foote, K. D. (2014). Deep brain stimulation for treatment-resistant depression: systematic review of clinical outcomes. Neurotherapeutics, 11, 475-484.
- 24. Roet, M., Boonstra, J., Sahin, E., Mulders, A. E., Leentjens, A. F., & Jahanshahi, A. (2020). Deep brain stimulation for treatment-resistant depression: Towards a more personalized treatment approach. Journal of Clinical Medicine, 9(9), 2729.
- 25. Juckel, G., Uhl, I., Padberg, F., Brüne, M., & Winter, C. (2009). Psychosurgery and deep brain stimulation as ultima ratio treatment for refractory depression. European archives of psychiatry and clinical neuroscience, 259, 1-7.
- 26. Bridges, P. (1991). Psychosurgery for resistant depression: progress and problems. International clinical psychopharmacology.
- 27. Cosgrove, G. R., & Rauch, S. L. (1995). Psychosurgery. Neurosurgery clinics of North America, 6(1), 167-176.