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Invited editorial

Electroconvulsive therapy: we are hesitant to use the most effective treatment for severe depression

There is little doubt that electroconvulsive therapy (ECT) is the most effective treatment for severe major depression. ECT is superior to other biological treatments for severe depression, both in remission rate and in speed of remission. Despite its superior efficacy, ECT is seriously underused. The limited use of ECT is probably because of stigma associated with the treatment, stereotypical negative images in the media, concerns about adverse effects and limited access. Also, in several guidelines, for example the NICE guideline (1), ECT is positioned at the very end of the treatment algorithm.

The review by Kellner et al. (2), which is published in this issue, is a valuable addition to ECT literature. This paper is very useful, since it is both comprehensive and easy to read. It covers its current use, common and uncommon indications for ECT, predictors of outcome, but also technical treatment parameters, adverse effects and maintenance treatment. The central point of this review is, however, its main indication, severe major depression.

As stated in the review, many treatment guidelines advise to 'consider ECT in psychotic depression'. The question is as follows: are there altogether reasonable arguments against ECT as first-line treatment in psychotic depression?

ECT achieved response rates of up to 90% (3) in patients with psychotic depression. These numbers are way beyond the efficacy of treatment with antidepressants in psychotic depression. The efficacy of antidepressants in psychotic depression varies between studies, a response rate of 50% to treatment with imipramine (4) being the most favourable result.

There is some evidence to support that the combination of an antidepressant and an antidepressant may be the superior pharmacotherapy for psychotic depression (5). However, in the STOP-PD study, combination treatment with olanzapine and sertraline resulted in a remission rate of 30% after 8 weeks and 42% after 12 weeks, which are far below the efficacy of ECT.

With regard to the results of ECT in the longer term, for example one year after the ECT course, post-ECT relapse is a major cause for concern. However, in an observational study by our group (6), post-ECT relapse after 12 months appeared to be remarkably low in the sample with psychotic depression, 20%. In this sample, continuation treatment was with a tricyclic antidepressant (TCA) or a TCA-lithium combination. Apparently, the favourable effect of ECT in psychotic depression is sustained in the large majority of patients: of 90% responders, ×80% maintained response = 72% of patients who received ECT remaining well one-year post-ECT. In conclusion, without any doubt ECT should be the treatment of choice in patients with psychotic depression.

In mixed populations of older patients, consisting of patients both with and without psychotic features, high remission rates were reported as well. In the MODECT study (7), the remission rate amounted to 66% in patients treated with right unilateral ECT. In the PROSPECT study (8), a remission rate of 73% was found in another sample of older patients, who were treated with bitemporal ECT. Finally, in the PRIDE study (9), a comparable remission rate was reported, also in a sample of older patients, the large majority without psychotic features, who were treated with right unilateral ECT.

As mentioned above, there are considerable concerns about the efficacy of ECT in the longer term, especially for patients with non-psychotic depression. A meta-analysis (10) estimated, that even with continuation pharmacotherapy or continuation ECT, about 50% of the patients will relapse within 12 months. However, combining continuation pharmacotherapy and continuation ECT may result in considerable lower relapse rates. Kellner et al. (11) demonstrated this in a randomized controlled trial in patients with geriatric depression. In their study, a venlafaxine–lithium combination plus a continuation ECT schedule (four continuation ECT treatments followed by further ECT only

as needed) resulted in a 13% relapse rate during the 6 months after the index course.

A topic closely related to the efficacy of ECT in major depression is the search for predictors of ECT response. As discussed earlier, psychotic features are an obvious predictor of ECT outcome (12). Other positive predictors are age and psychomotor symptoms. Melancholia has long been considered to be a good clinical predictor of ECT outcome in depression, but meta-analyses on the predictive value of melancholic symptoms were inconclusive because of study heterogeneity (12). Although there is uncertainty about the predictive value of melancholia, a recent study showed that patients with CORE-defined melancholic depression had a five times greater chance of reaching response than those with non-melancholic depression (13). Baseline severity is also considered as a positive predictor of ECT outcome. This is probably correct, albeit that it seems impossible to disentangle severity from psychotic symptoms or melancholic subtype. Although the literature regarding the influence of treatment resistance is somewhat divided, a recent meta-analysis concluded that treatment resistance is associated with a reduced response to ECT. Still, the overall remission rate in patients with treatment-resistant depression is rather encouraging, around 50% (14). A longer duration of the index episode reduces the efficacy of ECT, but it is strongly confounded with treatment resistance, so it is hard to tell which of the two is the most relevant predictor.

Furthermore, ECT has a very fast antidepressant effect, a significant improvement in depressive symptomatology may be observed after two ECT sessions (9). In a recent study with older depressed patients, a substantial number of patients (24%) that attained full remission did so within 4 ECT sessions (15).

In choosing between ECT and antidepressants, the fast antidepressant effect of ECT may be equally valuable as its superior efficacy. A substantial antidepressant effect within one week, which is often seen during an ECT course, is unfeasible during treatment with antidepressants. It often takes four weeks of antidepressant treatment until an obvious decrease in depression severity can be observed. Even if patients are not actively suicidal, do not show catatonic features and have an acceptable food and fluid intake, waiting four weeks for an antidepressant effect must be extremely long for patients who feel hopeless and are convinced that they have made terrible mistakes.

Hopefully, the review by Kellner et al. (2) can reduce some of the hesitation felt by treating psychiatrists and authors of guidelines. It could help to reduce the negative influence of stigma by educating its readers. Actually, we suggest that psychiatrists who treat patients with mood disorders or psychotic disorders as well as all residents in psychiatry should read this paper. They are the ones destined to integrate its recommendations into their clinical practice. This review shows that ECT should be first-line treatment in patients with psychotic depression. Furthermore, ECT should be considered as first-line treatment in patients with severe melancholic depression (without psychotic features).

Declaration of interest

Both authors declare that there are no conflicts of interest.

T. K. Birkenhager[1,2], *L.vanDiermen*[2,3]
[1]*Department of Psychiatry, Erasmus Medical Centre, Rotterdam, The Netherlands,* [2]*Department of Biomedical Sciences, Collaborative Antwerp Psychiatric Research Institute (CAPRI), University of Antwerp, Antwerp, Belgium and* [3]*Psychiatric Hospital Bethanië, Zoersel, Belgium*
E-mail: t.birkenhager@erasmusmc.nl

References

1. (NICE) NIFHACE. Guidance on the use of electroconvulsive therapy (Clinical Guideline 59). London: National Institute for Health and Clinical Excellence (NICE), 2010.
2. Kellner CH, Obbels J, Sienaert P. When to consider ECT. Acta Psychiatr Scand 2020;1–12.
3. Petrides G, Fink M, Husain MM et al. ECT remission rates in psychotic versus nonpsychotic depressed patients: a report from CORE. J ECT 2001;**17**:244–253.
4. Birkenhager TK, van den Broek WW, Mulder PG, Moleman P, Bruijn JA. Efficacy of imipramine in psychotic versus nonpsychotic depression. J Clin Psychopharmacol 2008;**28**:166–170.
5. Meyers BS, Flint AJ, Rothschild AJ et al. A double-blind randomized controlled trial of olanzapine plus sertraline vs olanzapine plus placebo for psychotic depression: the study of pharmacotherapy of psychotic depression (STOP-PD). Arch Gen Psychiatry 2009;**66**:838–847.
6. Birkenhäger TK, Renes JW, Pluijms EM. One-year follow-up after successful ECT: a naturalistic study in depressed inpatients. J Clin Psychiatry 2004;**65**:87–91.
7. Dols A, Bouckaert F, Sienaert P et al. Early- and late-onset depression in late life: a prospective study on clinical and structural brain characteristics and response to electroconvulsive therapy. Am J Geriatr Psychiatry 2017;**25**:178–189.
8. Birkenhäger TK, Roos J, Kamperman AM. Improvement after two sessions of electroconvulsive therapy predicts final remission in inpatients with major depression. Acta Psychiatr Scand 2019;**140**:189–195.
9. Kellner CH, Husain MM, Knapp RG et al. Right Unilateral Ultrabrief Pulse ECT in Geriatric Depression: Phase 1 of the PRIDE Study. Am J Psychiatry 2016;**173**:1101–1109.
10. Jelovac A, Kolshus E, McLoughlin DM. Relapse following successful electroconvulsive therapy for major depression:

a meta-analysis. Neuropsychopharmacology 2013;**38**: 2467–2474.
11. Kellner CH, Husain MM, Knapp RG et al. A novel strategy for continuation ECT in geriatric depression: phase 2 of the PRIDE study. Am J Psychiatry 2016;**173**:1110–1118.
12. Van Diermen L, van den Ameele S, Kamperman AM et al. Prediction of electroconvulsive therapy response and remission in major depression: a meta-analysis. Brit J Psychiatry 2018;**212**:71–80.
13. van Diermen L, Vanmarcke S, Walther S et al. Can psychomotor disturbance predict ECT outcome in depression? J Psychiatr Res 2019;**117**:122–128.
14. Haq AU, Sitzmann AF, Goldman ML, Maixner DF, Mickey BJ. Response of depression to electroconvulsive therapy: a meta-analysis of clinical predictors. J Clin Psychiatry. 2015;**76**:1374–1384.
15. Spaans HP, Verwijk E, Stek ML et al. Early complete remitters after electroconvulsive therapy: profile and prognosis. J ECT 2016;**32**:82–87.