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LETTERS TO THE EDITOR

Ketamine associated with electroconvulsive therapy for treatment-resistant depression in the elderly: Two case reports[☆]



Ketamina asociada a terapia electroconvulsiva en depresión resistente al tratamiento en pacientes de edad avanzada: a propósito de 2 casos

Dear Editor,

Treatment-resistant depression (TRD) is a common disease. It is calculated that from 60% to 70% of patients will respond to a first-line monotherapy, and that more than one third will be therapy-resistant,¹ considering those patients who fail to respond to 2 different antidepressives at suitable doses and for a suitable duration to be resistant.² Electroconvulsive therapy (ECT) has been shown to be highly effective in as a therapy for TRD as well as safe, even in geriatric patients.³ In spite of this, this, a significant number of subjects do not respond to ECT with conventional anaesthetics. We present 2 cases of TRD treated using ECT associated with ketamine.

Case 1: an 80 year-old male with a history of colon and lung adenocarcinoma, currently disease-free, with no history of psychiatric problems or known cognitive deterioration, who was admitted due to a severe depressive episode with psychotic symptoms (DSM-5 296.24 [F32.3]) evolving over 4 months without responding to 20 mg/day Citalopram and 25 mg/day Quetiapine; Hamilton Depression Rating Scale of 17 items⁴ (HDRS-17)=23. Treatment was gradually commenced with 225 mg/day Venlafaxine, 45 mg/day Mirtazapine, 5 mg/day Olanzapine and 100 mg/day Nortriptyline, without improvement. To manage anxiety 192 mg Clometiazol was used to varying degrees throughout treatment. Concomitantly, 12 sessions of basic bitemporal ECT were applied (3 sessions/week) (pulse amplitude 1.0 ms and 36 J energy increasing to 88.3 J using changes in frequency and stimulus duration), with 175 mg pentothal as anaesthetic. A suboptimum electroencephalographic average convulsion time was detected (avct) (16.58 s/session) and

short periods of confusion and disorientation were observed post-administration. Given the persistence of depressive symptoms (HDRS-17 = 18) palliative treatment was initiated using 6 sessions of endovenous ketamine on alternate days (0.63 mg/kg) with a notable improvement in symptoms (HDRS-17 = 5 following 2 sessions) which was no sustained over time (HDRS-17 = 19, 15 days after the end of the treatment).

Finally, after withdrawing Nortriptyline due to lack of effectiveness, 9 bilateral basic ECT sessions with ketamine as the anaesthetic were tried (0.9–1.34 mg/kg), achieving a suitable avct (28.36 s/session) while it was possible to reduce the energy to 75 J, keeping an amplitude of 1.0 ms, with good tolerability. The patient suffered the complication of a septic shock secondary to infection of the central catheter that made it necessary to suspend the ECT during 12 days. It was restarted with 8 sessions more per week of ECT-ketamine, showing a clear improvement in symptoms (HDRS-17 = 2). The patient is currently in remission 14 months after discharge, with maintenance ECT-ketamine (monthly) and 75 mg/day Venlafaxine and 30 mg/day Mirtazapine.

Case 2: a 69 year-old male without a medical-surgical or psychiatric record or known cognitive deterioration (mini mental state examination = 27) who was admitted due to an episode of severe depression with psychotic symptoms (DSM-5 296.24 [F32.3]) that had evolved over 8 months. It had hardly responded to previous treatments with 100 mg/day Sertraline, 30 mg/day Citalopram and 225 mg/day Venlafaxine combined with low doses of antipsychotic drugs. During admission 175 mg/day Imipramine was tried, together with 30 mg/day Mirtazapine and 15 sessions of basic bitemporal ECT (amplitude 1.0 ms; energy 43 J), with 200 mg pentothal and avct = 23 s/session, with episodes of disorientation and loss of short-term memory post-administration. Given the lack of response 11 basic sessions were applied of ECT-ketamine at 1.4 mg/kg (energy 38 J; avct = 50.9 s/session) with an improvement in symptoms (HDRS = 8) and no side effects.

At discharge he presented a new recurrence of the disorder (HDRS-36) following the switch from Imipramine to Venlafaxine due to a lack of supply, and after finalising the ECT-ketamine sessions. It was then decided to use treatment with 112.5 mg/day Clomipramine, 100 mg/day Sertraline and the commencement of 800 mg/day lithium without response, so that Imipramine was restarted at 100 mg/day and 17 basic sessions of ECT-ketamine at 1.28 mg/kg were administered (energy 31 J; avct = 44.3 s/session) with a clinical improvement (HDRS = 12) and good tolerability. One month after discharge he was clinically stable

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without complete remission, in treatment with 75 mg/day Imipramine, 150 mg/day Quetiapine and 15 mg/day Mirtazapine, while the outpatient department decided against maintaining ECT-ketamine.

Ketamine is an anaesthetic that is an antagonist of N-methyl-D-aspartate (NMDA) receptors; it is involved in the glutamatergic route and is of growing interest in the physiopathology of depression.⁵ Treatment with ketamine has been shown to have a swift antidepressive response, although its use is controversial and data on this in the literature are contradictory.^{6–8} A study conducted with 90 subjects with TRD showed faster and more sustained improvement in depressive symptoms, increasing cognitive protection and the duration of convulsion in those patients treated with anaesthetic doses of ketamine (0.8 mg/kg) and ECT.⁹ Nevertheless, there is a notable lack of evidence on its safety and efficacy in elderly patients, who are a group especially susceptible to TRD.

We believe that in our progress towards an increasingly personalised and technical psychiatry,¹⁰ ketamine may be a valid alternative to the use of conventional anaesthetics, giving a longer avct, which could play an important role in improving observed antidepressive efficacy. These results, together with the reported cognitive protection⁹—which was not evaluated in our subjects—mean that it is a desirable option for elderly patients, although more evidence is required to evaluate its effectiveness and safety in this age group.

References

1. Souery D, Papakostas GI, Trivedi MH. Treatment-resistant depression. *J Clin Psychiatry*. 2006;67:16–22.
2. Mathew SJ. Treatment-resistant depression: recent developments and future directions. *Depress Anxiety*. 2008;25:989–92.
3. Geduldung ET, Kellner CH. Electroconvulsive therapy in the elderly: new findings in geriatric depression. *Curr Psychiatry Rep*. 2016;18:40.
4. Hamilton M. A rating scale for depression. *J Neurol Neurosurg Psychiatry*. 1960;23:56–62.
5. Artigas F. ¿Antidepresivos glutamatérgicos? Las sorprendentes propiedades antidepresivas de la ketamina. *Rev Psiquiatr Salud Ment*. 2011;4:183–6.
6. Caddy C, Giaroli G, White TP, Shergill SS, Tracy DK. Ketamine as the prototype glutamatergic antidepressant: pharmacodynamic actions, and a systematic review and meta-analysis of efficacy. *Ther Adv Psychopharmacol*. 2014;4:75–99.
7. Fond G, Loundou A, Rabu C, Macgregor A, Lançon C, Brittner M, et al. Ketamine administration in depressive disorders: a systematic review and meta-analysis. *Psychopharmacology (Berlin)*. 2014;231:3663–76.
8. McGirr A, Berlim MT, Bond DJ, Neufeld NH, Chan PY, Yatham LN, et al. A systematic review and meta-analysis of randomized controlled trials of adjunctive ketamine in electroconvulsive therapy: efficacy and tolerability. *J Psychiatr Res*. 2015;62:23–30.
9. Zhong X, He H, Zhang C, Wang Z, Jiang M, Li Q, et al. Mood and neuropsychological effects of different doses of ketamine in electroconvulsive therapy for treatment-resistant depression. *J Affect Disord*. 2016;201:124–30.
10. Vieta E. La medicina personalizada aplicada a la salud mental: la psiquiatría de precisión. *Rev Psiquiatr Salud Ment (Barc)*. 2015;8:117–8.

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Should the laryngeal mask airway play a role in electroconvulsive therapy?[☆]



¿Debería desempeñar un papel la mascarilla laríngea en la terapia electroconvulsiva?

Dear Editor,

We read with interest the article by Buj-Alvarez et al.¹ describing the use of a laryngeal mask airway (LMA) during

electroconvulsive therapy (ECT) to facilitate hyperventilation and would like to share our experience. While there is a place for the LMA during ECT (primarily as a rescue device as part of the American society of anesthesiologists difficult airway algorithm in patients who cannot be ventilated) we feel that for a number of reasons routine use is not necessary and may actually be detrimental.

The pilot study described in the article compared two groups of patients, one ventilated with an LMA and one with a face mask, but it is not clear if the face mask group was ventilated with any assistive devices such as an oral airway. Since it is not possible to accurately measure the end tidal CO₂ when ventilating with a face mask it is also unclear how the authors were able to determine that the results of this study were related to a difference in the degree of hyperventilation achieved by the two different methods of ventilation. Minute ventilation can be used as a proxy for quantifying the degree of hyperventilation in the facemask

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