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Introduction: Electroconvulsive therapy (ECT) is a highly effective treatment for major depression with response rates of up to 80%. However, a significant minority does not respond, and no evidence-based guidelines are available for the management of ECT-resistance. Ketamine is an anaesthetic agent with N-methyl-D-aspartate-receptor-antagonist properties, that has a rapid but short-lasting antidepressant effect in treatment-resistant depression.

Objectives: To present a case of ECT-resistant depression that responded when ketamine anaesthesia was used.

Aims: To review the available literature on ECT-resistance and augmentation of ECT.

Methods: A case is presented and discussed, followed by a systematic literature review.

Results: We present the case of a 75-year-old woman with severe major depression unresponsive to several adequate treatments with antidepressants, augmentation with antipsychotics, and ECT with anaesthesia using propofol or etomidate. When ketamine was used for anaesthesia, she experienced remission of her condition. She remained well with a continuation of this treatment at a decreasing rate. A literature review revealed that most augmentation strategies for ECT concerned the optimisation of seizures by using of substances that lowered the seizure threshold (e.g. xanthines) or anaesthetics that do not increase the seizure threshold (e.g. remifentanyl). Ketamine anaesthesia was shown to speed up response to ECT, but did not increase response rates. However, these studies were not done with ECT-resistant patients. This case suggests that switching to ketamine anaesthesia may be beneficial in these patients.

Conclusion: There are little evidence-based augmentation options for ECT-resistance. This case suggests that ketamine anaesthesia may be efficacious as augmentation in ECT-resistance.