

LINNOILA, M., GEORGE, T., LISTER, R., *et al* (1988) Antidepressant-alcohol interactions. *Abstracts of the British Association for Psychopharmacology Meeting*, Galway, Ireland, September 1988.

Failure to Convulse with ECT

SIR: The patient who fails to convulse when an electric stimulus is applied for electroconvulsive therapy (ECT) always causes concern. Sharpe & Andrew (*Journal*, January 1988, **152**, 134–136) recently described such a case and explored the possible explanations and remedies in detail. Although propofol was not used in the case described, I would like to draw attention to the effect this newly introduced induction agent has on seizure activity in ECT.

ECT was recently administered to a depressed 55-year-old male patient. The seizure duration was routinely timed, and it was observed that on two occasions this was reduced to 5 s instead of the usual 12–25 s (mean = 20 s). The intensity of the seizure was also noted to be correspondingly reduced. On both these occasions propofol had been used, as opposed to methohexitone, as the induction agent, while the doses of muscle relaxant, suxamethonium, were equivalent. Exploring this further, it appears that our anaesthetist colleagues are already aware of this phenomenon.

Propofol is a recently introduced induction agent which appears to have many advantages from an anaesthetic viewpoint, including fewer side-effects, painless administration, rapid induction and recovery, and a half-life of 1.8–8.3 min. However, Dwyer *et al* (1988) have shown in a study using patients as their own controls that propofol, compared with 1% methohexitone, reduces both observed seizure duration and duration of cerebral electrical seizure activity by an average of 25% ($P < 0.001$). They also found that it obviates the hypertensive response to ECT.

As propofol is becoming increasingly popular among anaesthetists, it is important that psychiatrists are aware of the curtailing effects it has on seizure activity. It is suggested that, until this phenomenon is explored further and propofol is shown not to reduce the therapeutic benefits, alternative anaesthetic agents are used for ECT. Propofol is easily identified as an opaque white emulsion, compared with the clear colourless solutions of methohexitone and thiopentone.

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Reference

DWYER, R., McCAUGHEY, W., LAVERY, J., *et al* (1988) Comparison of propofol and methohexitone as anaesthetic agents for electroconvulsive therapy. *Anaesthesia*, **43**, 459–462.

SIR: It is with great interest that I read the letter of Pippard & Russell (*Journal*, May 1988, **152**, 712–713), regarding the paper by Sharpe & Andrew (*Journal*, January 1988, **152**, 134–136) which describes failure to convulse with ECT. Of particular interest are their assertions that “the patient resistance is unknown, but probably between 200 and 500 ohms”, that the “last 4 ms of each semi-sine wave is largely ineffective because of falling potential”, and finally that “owing to the rapid exponential fall of potential with this capacitor discharge type of apparatus [Transpsycon] the effective stimulus is limited to the first 0.5–0.75 s”. They go on to suggest that the “use of a constant current stimulus largely compensates for variation in the patient resistance”.

The new EICoT MF-1000 ECT unit was designed with precisely these kinds of difficulty in mind. It is a microprocessor-based unit, which measures the patient's impedance continuously, once every cycle. Thus, for instance, with a brief-pulse stimulus of frequency 80 Hz, the unit measures the patient impedance 80 times per second, and readjusts the stimulus accordingly to deliver precisely the prescribed dosage. In this manner, the physician can be certain that, despite the well-documented impedance variability across patients, as well as for a given patient from day to day and even in the course of a single treatment session (Gangadhar *et al*, 1985), the stimulus delivered by the ECT unit will remain fixed.

Drs Pippard & Russell are correct in stating that “the optimum parameter levels for ECT are still uncertain”. Indeed, it has been argued that the exact effects, if any, of each parameter are either unknown or, at best, ill understood. This need not be so, however. No other medical treatment is administered “blindly”, to use the term of Drs Pippard & Russell, and it would appear that remaining uncertainties in ECT are due more to the inability to fully control dosage because of the difficulties mentioned above than to the nature of the treatment itself. Now that treatment can proceed in a controlled and repeatable fashion, thanks to computer technology, one can hopefully expect the publication of research results providing more and more information on the effects of duration, frequency, pulse width, potential, current, and energy on the effectiveness of ECT.

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Reference

GANGADHAR, B. N., LAKSHMANNA, G., SUBBA KRISHNA, D. K., *et al* (1985) Impedance measurements during electroconvulsive therapy. *Nimhans Journal*, **3**, 135–139.