Investigation of the ‘cuff’ method for assessing seizure duration in electroconvulsive therapy

AIMS AND METHOD
Electroconvulsive therapy should be effectively monitored and seizure duration accurately ascertained. We observed the seizure duration in both lower and upper limbs using the Hamilton ‘cuff’ method.

RESULTS
Thirty-nine seizures in 19 patients were observed. There were no statistically significant differences between cuffed and uncuffed limbs, nor between upper and lower limbs. Data were analysed using the Statistical Package for Social Sciences v7.5 for Windows. A two-way analysis of variance (ANOVA), the appropriate test for simultaneous continuous observations, found no significant difference between upper and lower limbs, nor between cuffed and uncuffed limbs in terms of the MSD. In no case did a seizure occur in a cuffed limb and not in the uncuffed limb.

CLINICAL IMPLICATIONS
Alternatives to the Hamilton cuff method to observe seizure duration need to be considered.

Method
Nineteen patients receiving electroconvulsive therapy (ECT) within a six-month period gave consent to be included in the trial. Patients with peripheral vascular disease were excluded, as were patients who could not read English. Standard ECT procedures were followed. After administration of the anaesthetic agent, arm and leg cuffs, contralaterally placed, were inflated to 200 mm Hg and 220 mm Hg respectively. A specific leg cuff was used to prevent erroneously elevated sphygmomanometer readings. The muscle relaxant followed by the stimulus dose was then administered. Three observers noted the duration of the convolution: one observed the face, one the arms and one the legs. Seizure duration was defined as the length of time between cessation of the stimulus and absence of tonic–clonic seizures.

Comments
From these results it appears that there is little observable difference between a cuffed and an uncuffed limb, even if lower limbs and specialist tourniquets are used. Several authors have suggested that there is little difference in seizure duration observed with EEG monitoring and the Hamilton ‘cuff’ method (Lambert & Petty, 1994). Our data suggests that there is no difference between a cuffed limb and an uncuffed limb. We suggest that the use of the Hamilton cuff method to observe absent seizures should cease; this merely delays addressing the real cause of ‘absent’ seizures and may involve anaesthesia without therapeutic effect. This recommendation should be dropped from the Royal College of Psychiatrists (1995) handbook on ECT. Given that as long ago as 1966 the literature suggested the adoption of continuous EEG monitoring, and that the Hamilton cuff method has been shown to be ineffective, the adoption of EEG monitoring as standard needs to be seriously considered.

References

*M. E. Jan Wise Registrar in Psychiatry, Fiona Mackie Senior House Officer in Psychiatry, Antonios C. Zamar Lecturer and Honorary Senior Registrar in General Adult Psychiatry, James P. Watson Professor of Psychiatry, Guy’s, King’s & St Thomas, Department of Psychiatry, Thomas Guy House, Guy’s Hospital, London SE1 9RT