Annals of General Hospital Psychiatry

Poster presentation

ECT and heart rate changes: an alternative to EEG monitoring for seizure confirmation during modified ECT

BN Jagadisha Gangadhar*, RD Ranganath, VS Candade and KR Hemalatha

Address: Department of Psychiatry, National Institute of Mental Health And Neuro Sciences, Bangalore, India and Nivique Meditech Private Limited, Bangalore, India

* Corresponding author

from International Society on Brain and Behaviour: 1st International Congress on Brain and Behaviour
Hyatt Regency Hotel, Thessaloniki, Greece, 20–23 November, 2003

Published: 23 December 2003 Received: 1 November 2003

Annals of General Hospital Psychiatry 2003, **2**(Suppl 1):S62

This article is available from: http://www.general-hospital-psychiatry.com/content/2/S1/S62

Background

Detection of occurrence of adequate seizure is difficult in modified ECT, because of muscle relaxation. "Cuff method", can sometimes miss a seizure of adequate duration as measured by EEG.

Aim

To examine if increase in heart rate can be an additional guide to detect adequate cerebral seizures.

Material and Methods

Heart rates before and following the stimulus were estimated in 100 ECT sessions of two groups vs., adequate EEG seizure duration ≥ 25 seconds; n = 60) and inadequate (EEG seizure duration <25 seconds; n = 40) EEG seizures. The peak heart rate, the ratio of peak to the baseline heart rate (normalized peak heart rate) and time required to reach peak heart rate were found for each of these recordings and the two groups were compared.

Results

The group with adequate EEG seizure had significantly higher peak heart rate, higher peak to baseline heart rate ratio and longer time to reach peak heart rate. In 98.5% of sessions with adequate seizures and only in 5% of sessions with inadequate seizures the normalized peak heart rate was more than a cut-off of 1.18. In all sessions with adequate seizures heart rate reached the peak value after 7 seconds; only in one of the sessions with inadequate seizures (2.5%) it reached peak value after 7 seconds. A combination of time-to-peak of 7 seconds and normalized peak heart rate of 1.18 could segregate all sessions with adequate seizures from sessions with inadequate seizures.

Discussion

The time required to reach the peak heart rate along with normalized peak heart rate in that order can be additional measures to detect adequate seizure during modified ECT.