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Ramaratnam S, Baker GA, Goldstein LH

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[Intervention Review]

Psychological treatments for epilepsy

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REASON FOR WITHDRAWAL FROM PUBLICATION

This review has been superseded by the protocol 'Psychological treatments for people with epilepsy' (Michaelis 2016). The full review is expected to be published by 1st July 2016.

The editorial group responsible for this previously published document have withdrawn it from publication.

FEEDBACK

Query relating to EEG bio-feedback

Summary

The review authors were asked if they were aware of any ongoing trials in EEG bio-feedback in epilepsy.

Reply

We only found one completed RCT on the use of EEG bio-feedback in epilepsy and this was included in our review. We are unaware of any ongoing RCTs on the use of EEG bio-feedback in epilepsy.

Contributors

Comment made by Harry McConnell (UK). Sridharan Ramaratnam replied to the comment on behalf of the authors of the review.

EEG biofeedback studies

Summary

This review has neglected a very significant body of literature on EEG biofeedback. I have supplied more than 3 dozen references to the author, Dr. Ramaratnam. The review only cites 1 controlled study of EEG biofeedback with uncontrolled epilepsy, but there are several. This literature was reviewed by: Sterman, M. B. (1990). . Basic concepts and clinical findings in the treatment of seizure disorders with EEG operant conditioning. *Clinical Electroencephalography*, 32(1), 45-55. This review notes that in 82% of cases, there was a significant reduction in seizure rate in patients with uncontrolled epilepsy across the studies reviewed. Below I will provide references to studies that were neglected by Sterman's review, or which have occurred since his review.

Studies that were not included in the Sterman review that show very significant outcomes from EEG biofeedback include: Kotchoubey, B. et al. (1999). Changes in EEG power spectra during biofeedback of slow cortical potentials in epilepsy. *Applied Psychophysiology &*

Biofeedback, 24(4), 213-233; Kotchoubey, D., et al. (2001). Modification of slow cortical potentials in patients with refractory epilepsy: A controlled outcome study. *Epilepsia*, 42(3), 406-416.

Birbaumer, N. et al. (1991). Clinical psychological treatment of epileptic seizures: a controlled study. Chapter in A. Ehlers et al. (Eds.), *Perspectives and Promises in Clinical Psychology*. New York: Plenum Press; Rockstroh, B. et al. (1993). Cortical self-regulation in patients with epilepsies. *Epilepsy Research*, 14, 63-72; Uhlmann, C., & Froscher, W. (2001). Biofeedback treatment in patients with refractory epilepsy: Changes in depression and control orientation. *Seizure*, 10(1), 34-38.

It is my hope that the Ramaratnam, Baker and Goldstein review will be updated to include these very important studies which clearly demonstrate the effectiveness of EEG biofeedback in assisting with the treatment of uncontrolled epilepsy.

Reply

Thank you for your comments regarding our Cochrane review "Psychological Treatments for Epilepsy". We, as part of the Cochrane collaboration, welcome criticisms and are always on the look out for studies, which may have been missed by our searches.

The objective of the collaboration is to produce systematic reviews with the minimum of bias. Because randomized controlled trials (RCTs) are the least biased means of assessing the effects of medical interventions, our review included only RCTs.

Unfortunately, most studies of EEG biofeedback (including the references you have provided) are not RCTs and hence are prone to considerable bias. The majority are either case reports or before and after comparisons or N1, N2, N3 comparisons. Many of them are unblinded, with a small sample size. Most studies do not report seizure outcomes in detail. Some studies have investigated cognitive outcomes, depression or EEG only. These methodological deficiencies have been highlighted in the text of the review.

I once again thank you for your interest in the review.

Contributors

Comment made by Professor D. Corydon Hammond (USA). Sridharan Ramaratnam replied to the comment on behalf of the authors of the review.

WHAT'S NEW

Date	Event	Description
24 February 2016	Amended	This review has been withdrawn. Please refer to Published notes for further information.

HISTORY

Protocol first published: Issue 2, 2000

Review first published: Issue 4, 2001

Date	Event	Description
21 January 2010	New search has been performed	Searches updated 11 January 2011; three new studies have been added (Dilorio 2009; Lundgren 2008; Pramuka 2007). Conclusions remain unchanged.
24 October 2008	Amended	Search strategy amended to comply with RevMan 5 format.
1 May 2008	New citation required but conclusions have not changed	We re-ran our searches on 1 July 2007. We have added two new studies of cognitive behaviour therapy (Lundgren 2006; Marti-novic 2006). Changes have been made in all sections (description of studies, methodological quality, results and discussion) dealing with cognitive behaviour therapy. Data tables have been modified. However, there is no change in the conclusions.

Date	Event	Description
1 May 2008	New search has been performed	Substantive update.
30 April 2008	Amended	Converted to new review format.
4 July 2005	New citation required but conclusions have not changed	Substantive amendment.
