

Correspondence

QJM

Inducing sensory stimulation in treatment of anorexia nervosa

Anorexia nervosa (AN) is an important cause of physical and psychosocial morbidity in adolescent girls and young adult women. We have recently begun to understand some aspects of the complex network of psychological and biological determinants of this syndrome,¹ providing substantial input to new treatment strategies. AN has been associated with a functional deficit of the right hemisphere, a plausible cause for the severe disturbances of body image that are among the most important predictors for clinical severity of AN.² However, current therapeutic approaches are relatively ineffective as regards this parameter.^{3,4} We therefore searched for a stimulation treatment that would increase right hemispheric activity and improve body image. We proposed intensive somatosensory stimulation of the whole body to serve this purpose.

A conventional custom-made neoprene diving suit was worn by a female anorectic patient over underclothes for one hour three times per day. Body temperature was measured axillarily before and after wearing the diving suit. The patient kept a diary to record events of the day and specific body feelings during the time wearing the suit. The pilot treatment lasted throughout 15 weeks (January–April 2003). The whole project lasted 14 months (December 2002–January 2004). During this time, body weight was recorded 39 times (Figure 1). Background EEG (eyes closed, everyday clothes on without diving suit) was recorded 5 times to evaluate EEG theta power. Quality of body representation was assessed repeatedly using the 'angle paradigm'.⁵ Standardized clinical questionnaires focusing on eating disorders were carried out at the beginning and the end of the project. The patient was informed about the research and her written consent was obtained prior to the study.

At the beginning, the patient was 19 years old (46.50 kg, 179 cm; BMI 14.5). Since the age of 14, she has been suffering from AN (ICD-10 restrictive

type). Before our treatment, she underwent two in-patient and three ambulatory psychotherapies. No medications (except contraceptives) had been taken by the patient during the study. No neurological or any other psychiatric diseases were diagnosed. During the time of investigation the patient was actively taking part in her arts and media classes at university. Since August 2003, the patient has been undergoing ambulatory psychotherapy for AN (once per week).

The patient described no mental or physical side effects from wearing the diving suit. Body weight increased significantly from 47.22 kg (SD 1.01) without treatment to 48.06 kg (SD 0.76) during the period wearing the diving suit ($T=4.52$, $p<0.001$). EEG theta activity showed low activity, with left-hemispheric dominance at the beginning of investigation (t_0 and t_1). At the end of pilot treatment (t_2), theta activity showed a remarkable enhancement, including a shift to the right hemisphere (Figure 1). This change reversed at the end of the project (t_4). Analysis of angle deviations revealed strong deviations at t_0 , smallest deviations at t_2 , and reversing deviations at t_3 – t_4 (Figure 1).

We assume that significantly gained body weight and smaller angle deviations at t_2 are consequences of an improved body image representation due to an activation of the right hemisphere by the increased somatosensory stimulation while wearing the diving suit. Theta activation, body weight, and body image approximate to initial levels after the end of treatment. Therefore, we assume a close causal relationship between these factors. Alternatively, thermal insulation of the neoprene suit might have influenced these factors (body temperature rose from 35.95°C (SD 1.17) before to 36.49°C (SD 0.60) after wearing the suit).

Increased body weight, normalized theta activity, and improved body image were the apparent results of wearing a diving suit. However, this is a single

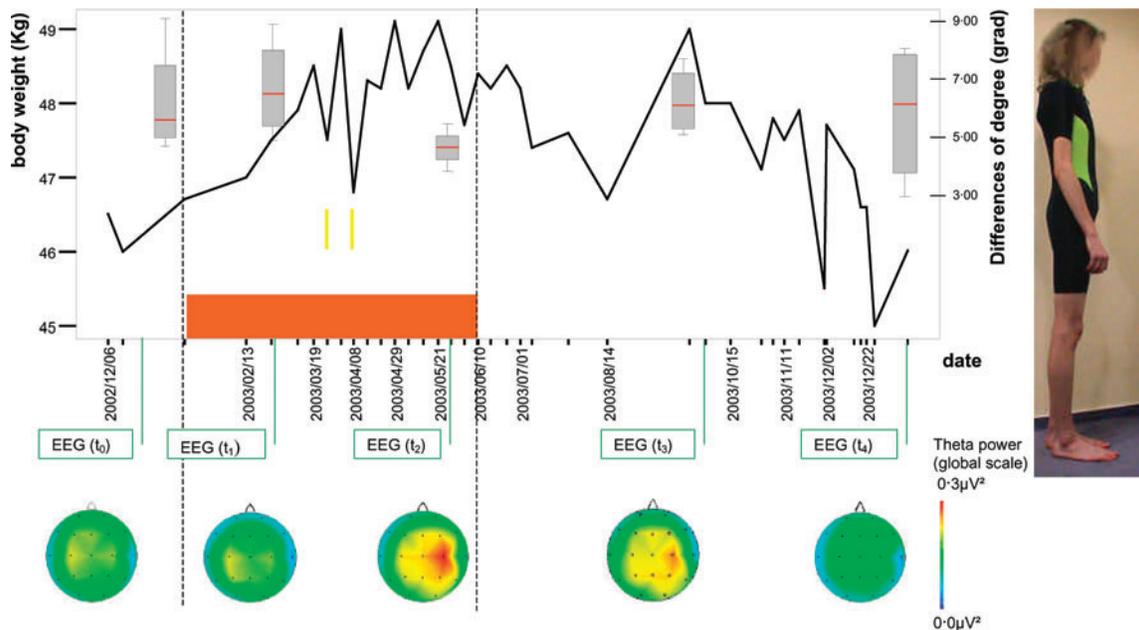


Figure 1. Body weight, differences in an angle paradigm, and EEG theta (3.5 Hz–7.5 Hz) activity of patient A.B. during 14 months. Upper part: Pattern of body weight (solid line, ordinate on the left side) and deviations of angle between nominal and reproduced angles in the angle paradigm⁵ at five points in time (t_0 – t_4) (grey bars, ordinate on the right side). The red bar indicates the time during which the patient used the diving suit (for one hour three times per day). Small yellow bars indicate an episode of a common cold. Note that highest weight and smallest differences between nominal and reproduced values of angles were observed at the second measurement (t_2), i.e. during the treatment. Lower part: Power-maps of background EEG theta activity with eyes closed at five points in time (t_0 – t_4). A strong activation of the right hemisphere could be observed at (t_2), i.e. during the treatment. The patient wearing the diving suite (at t_0) is depicted on the right.

case study providing interesting but preliminary results.

M. Grunwald
Haptic and EEG-Research Laboratory
Department of Psychiatry
University of Leipzig
Leipzig

T. Weiss
Department of Biological and Clinical Psychology
Friedrich Schiller University
Jena
Germany
email: mgrun@medizin.uni-leipzig.de
www.eeglabor.de

Acknowledgements

The study was supported by the Deutsche Forschungsinitiative Essstörungen e.V. (Leipzig, Germany) and IZKF Jena. The sponsors of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. Thanks to B. Assmann for data acquisition and J. Busse for language advice.

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doi:10.1093/qjmed/hci061

Haemochromatosis and non-hepatic malignancy

Sir,

We thank Dr Das for his interest in our recent review.¹ He highlights the high risk of non-hepatic malignancies in hereditary haemochromatosis (HH).²