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PARK

Real-time Electro-Acupuncture with Cardiac Autonomic Response in Chronic Tension-Type Headache

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PEPER

Smart Phone/Tablet Apps for Biofeedback Clinical and Personal Use

Erik Peper, Jasmine Mitose, Rick Harvey, Emily Rogers, Sandy Liu

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PIERINI

Integrating Biofeedback in the Treatment of Migraine and Tension Type Headaches: Preliminary Observations

Giacinta D'Otolo, Biagio Ciccone, Davide Pierini

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ROSA

Quantification of Co-contraction Index During Walking Using a Low-tech Ambulatory System - A Preliminary Reliability Study

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TSUTAYA

Relaxation Effects of a Biofeedback Assisted Respiratory Training on Japanese Adult Diabetic Patients

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TUNE

From Learning Disabilities to Learning Differences Over to Learning Abilities and Learning Gifts

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Integrating Biofeedback in the Treatment of Migraine and Tension Type Headache

Giacinta D'Otolo, Biagio Ciccone, Davide Pierini

Abstract

Background. Chronic pain has been associated with the interplay between physiological, psychological, physical, and social factors. In Europe the 1-year prevalence of chronic headache seems to be 4.0%. Prevalence of Migraine is approximately 14%, while prevalence of Tension Type Headache (TTH) is 62% (Stovner, 2010). Biofeedback is a technique addressing health issue in a biopsychosocial perspective and an extensive body of literature indicates that it can be considered efficacious in treating migraine and TTH (Nestoriuc, 2008).

Goal. We present a series of cases of headache treated by a small interdisciplinary team, integrating pharmacological, psychophysiological (biofeedback), and psychological interventions.

Method. Pre and post treatment, we measured pain duration, pain intensity, pain frequency, as well as emotional symptoms and quality of life. After a neurological, psychological, and psychophysiological assessment patients received an average of 15 biofeedback sessions integrated with cognitive intervention and, in some case, with medications.

Results. After treatment, we observed a reduction of 50% in pain duration and a reduction of the 62% in pain frequency. In most cases symptoms of anxiety and depression appeared improved. Finally, impact of headache on daily life was also reduced.

Conclusion. Our experience suggests that integrated treatments of headache are feasible and efficacious. Consistently with scientific literature, biofeedback trainings seem to decrease pain, to reduce emotional symptoms, and improve quality of life.

References

Andrasik F. Biofeedback in headache: An overview of approaches and evidence. *Cleveland Clinic Journal of Medicine*, 2010; 77(3):72-76

Nestoriuc Y., Rief W., and Martin A. Meta-Analysis of Biofeedback for Tension-Type Headache: Efficacy, Specificity, and Treatment Moderators. *Journal of Consulting and Clinical Psychology*, 2008; 76(3):379-396

Stovner LJ, Andree C. Eurolight Steering Committee. Prevalence of headache in Europe: a review for the Eurolight project. *Journal of Headache and Pain*. 2010(11):289-299



Giacinta D'Otolo PhD, Biagio Ciccone MD, Davide Pierini, MPs

Goals

- To present the effects of a biopsychosocial treatment of headaches integrating biofeedback as primary intervention.

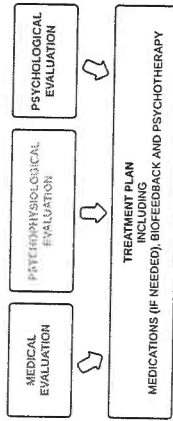


Figure 1. Treatment plan results from a biopsychosocial assessment.

Method

- Data about pain, emotional symptoms, and the impact of headache on daily life were collected from a series of cases of before and after treatment.
- Treatment consisted in an integration of biofeedback training, CBT, and medications.
- To measure the effects of the intervention we used:
 - ✓ Pain log
 - ✓ Symptoms Check List 90 Revised (SCL 90-R)
 - ✓ Headache Impact Test 6 (HIT-6)

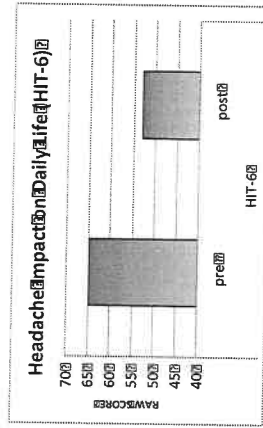


Figure 2. Impact of headache on daily life pre and post treatment (average of all cases).

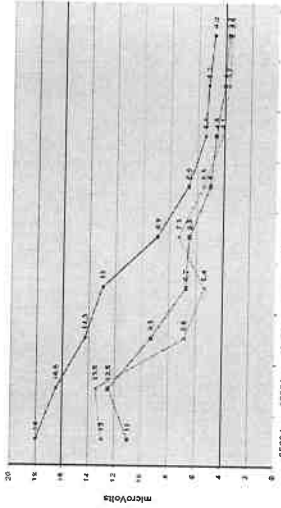


Figure 3. Case #6 - Session-by-session muscle activity before, during and after training (sEMG forehead montage).

Results

- Reduction of pain frequency and duration.
- Reduction in emotional symptoms.
- Reduction of headache impact on daily life.

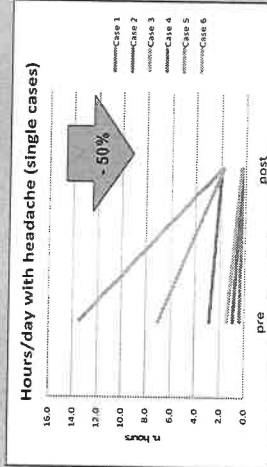


Figure 4. Average number of hours per days with pain pre and post treatment.

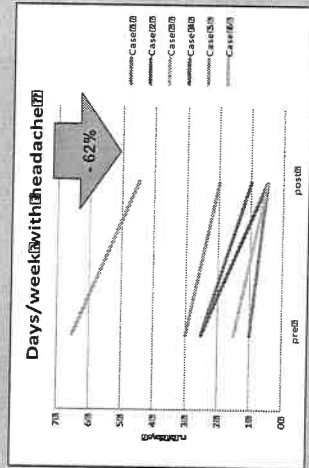


Figure 5. Average number of days with headache every week pre and post treatment.

Psychological & Biofeedback Intervention

- Biofeedback training: sEMG, peripheral temperature, heart rate variability, hemo-encephalography (choosed according to psychophysiological assessment).
- Cognitive techniques (i.e. cognitive restructuring, problem solving, assertiveness).
- Changes in life style (i.e. regular sleep, healthy diet, exercise, reduction of coffee, cigarettes and alcohol consumption).
- We provided an average of 15 biofeedback sessions (min 15 - max 19).

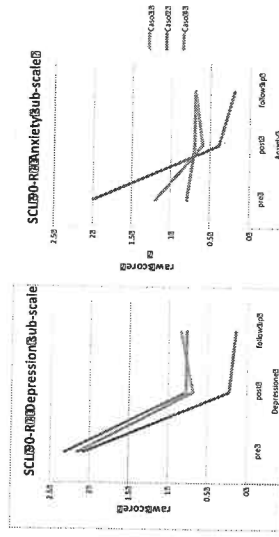


Figure 6. Effects of the biofeedback training on emotional symptoms pre/post treatment (cases #1, #2, #3).

Conclusions

- Biofeedback can be integrated in a interdisciplinary team aiming at the treatment of headaches.
- Results in a clinical setting appears clinically relevant and consistent with scientific literature.
- Biofeedback can have a positive impact on:
 - the relevant physiology underlying pain (i.e. reduction in muscle tension)
 - the emotional state
 - the perception of control over symptoms (orally reported by patients)
 - the quality of life.

References
 Andrasik F. Biofeedback in headache: An overview of approaches and evidence. *Cleveland Clinic Journal of Medicine*, 2010; 77(3):72-76
 Nestorluc V., Rief W., and Martin A. Meta-Analysis of Biofeedback for Tension Type Headache: Efficacy, Specificity, and Treatment Moderators. *Journal of Consulting and Clinical Psychology*, 2008; 76(3):379-390