Figure 3. Examples of recovery after long-standing Bell's palsy by Crystal Touch patients

Conclusions

During early stages of Bell's palsy patient exerts constant mental efforts of high intensity, trying to produce facial movements. Due to high intensity, those efforts cannot be finely differentiated between proper facial muscles. This leads to a "mass-contraction" pattern of resulting efferent signals and suppresses natural mechanism of reciprocal inhibition of antagonists. Volitional mimetic center of the brain begins to form new, Pathological Amplification Mimetic Pattern (PAMP). When the regenerating nerve fibers finally reconnect to their facial muscles, PAMP manifests itself in synkinesis, rigidity of facial muscles, and gradually solidifies into a conditioned reflex. As any conditioned reflex, facial synkinesis can therefore be reversed by negative feedback, as demonstrated by results of our patients.

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Free papers 21 - Neurorehabilitation

"Virtual reality based neuro-rehabilitation in acute stroke: A prospective cohort study of its effectiveness for upper limb motor recovery"

M. Thakre[a], C. Sankhala[a], P. Vengurlekar[a], G. Garipelli[b]
[a]P. D. Hinduja National Hospital and Medical Research Centre, Neurology, Mumbai 400016, India
[b]MindMaze SA, Neuroengineering Scientist, Chemin de Roseneck 5, Lausanne 1006, Switzerland

Background

Recent evidence has demonstrated the efficacy of Virtual Reality (VR) for stroke rehabilitation. There is insufficient evidence about the positive effect of virtual reality on motor function in acute to sub-acute stroke.

Objectives

To evaluate the functional outcomes in the upper limb when exposed to intensive VR-based therapy and its impact on the activities of daily living capacities in acute stroke patients.

Methods

This is prospective cohort study conducted among acute stroke patients. We enrolled 14 subjects who had NIHSS between 5 and 14 (moderate). The intervention consisted of 90 minutes neuro-rehabilitation sessions of VR plus standard physiotherapy, with a frequency of 5 sessions per week over a period of 6 weeks (total 30 sessions). The outcome measures at baseline (T0), post-treatment (T1) and at 4-week follow-up (T2) were the Fugl-Meyer Assessment for Upper Extremity (FMA-UE), Barthel Index, Nine Hole Peg Test (NHPT) and Box and Block Test(BBT) and Patients' answers to the questionnaire for technology acceptance and safety.

Results

The functional outcomes significantly improved in all outcome measures. Mean difference post therapy FMA-UE was -17.85 ± 8.21 (p < 0.001), for NHPT was 66.20 ± 34.24 (p < 0.001), For BBT was -12.25 ± 6.51 (p < 0.001), Barthel Index was -29.28 ± 12.83 (p < 0.001). Interestingly effect was persistent in all outcome measure in follow up, FMAUE -9.07 ± 6.55 p < 0.001), NHPT 34.46 ± 34.12 (p = 0.003), BBT -7.57 ± 4.75 (p < 0.001).

Conclusions

VR rehabilitation in acute post-stroke patients seems effective in restoring upper limb motor impairments and motor related functional abilities.

Keywords: Stroke, Upper limb, Exercise therapy, Virtual reality, Motor recovery, Treatment outcome

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BOS-technologies of rehabilitation in patients with Parkinsonism

Y. Bykov, T. Bender
Irkutsk State Medical University, Neurology, Irkutsk, Russia

Background

Parkinsonism is progressive neurodegenerative pathology. It is subdivided on Parkinson's diseases (PD) and syndrome of parkinsonism (PS). Mobile biofeedback-brain stimulation is one of new technologies of rehabilitation in neurology.

Methods

Assessment tools:MoCa-test, HADS, UPDRS, Hoehn-Yahr Scale, Vegetative disturbance Scale, SF-36.

150 patients were included this trial: PD – 112, PS – 38. All groups were divided into 2 subgroups: 1) therapy with BOS-brain stimulation; 2) therapy without stimulation. Sensory-motor processes of finger tapping were accessed by special mobile application installed on smartphone. Stimulation programs were prescribed for patients as a sound stimulus by headset in individual regimes during 14-20 days twice per day.

Results

PD group: 63,4% of patients had akinetic-rigid-tremor syndrome as motor dysfunction, 32,1% had mild cognitive impairments, 35,7% - anxiety, 33% – depression. PS group: 36,8% of patients had akinetic-rigid syndrome as motor dysfunction, 50% had mild cognitive impairments, 39,5% – subclinical depression.

Best results of BOS-stimulation were revealed in PD group. it was evidenced by MoCa-test (p<0,0001), HADS anxiety index (p<0,0001), HADS depression index, SF-36 (p<0,0001).

Results of BOS-stimulation in PS group evidenced by MoCa-test, HADS anxiety index, HADS depression index.

Conclusions

Obtained data reveal that most frequent type of Parkinson's disease was akinetic-rigid-tremor, non-motor symptoms were presented by mild cognitive impairments, anxiety, depression. In group of syndrome of parkinsonism most frequent type was akinetic-rigid, non-motor symptoms were presented by mild cognitive impairments and subclinical depression.

Best results of BOS-stimulation therapy were received in Parkinson's disease group, particularly in motor, cognitive and emotional functions.

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The relationship of the occupational circumstances and community integration in schizophrenia

G. Akyurek, H. Isik, G. Bumin
Hacettepe University, Occupational Therapy, Ankara, Turkey

Purpose

This study was investigated to occupational circumstances in schizophrenia and its relationship with community integration in people with schizophrenia.

Methods

Fifty people with schizophrenia were assessed with Occupational Circumstances Interview And Rating Scale V2 (OCAIRS-V2) and World Health Organization-disability assessment schedule 2.0 (WHODAS 2.0).

Results

The OCAIRS V2 was assessed by Rasch Analysis and the relationship of occupational circumstances with community integration was assessed by correlation coefficient. After rescoring the disordered response categories and sub testing "short-term goals" and "long-term goals", item set satisfied Rasch model expectations with a mean item fit of 0 (SD 0.631) and person fit of 0.706 (SD 1.1). While the unidimensional assumption was confirmed, the subset of "long and short-term goals" showed differential item functioning in terms of education. (Those with an education level of primary school were rated lower than those with high school and university graduation.) The presence of the expected level of correlations between OCAIRS V2, and WHODAS 2.0 has confirmed the relationship between occupational circumstances and community integration.

Discussion

In this study, it was examined that the relationship between occupational circumstances and community integration. During the medical intervention, the rehabilitation plan was aimed at improving the community integration for people with schizophrenia.

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Free papers 21 - Neurorehabilitation

Reflections of mirror therapy on the functional recovery after stroke

M. Mandeep, D. Khurana
Post Graduate Institute of Medical Education and Research, Department of Neurology, Chandigarh, India

Introduction

Motor function after stroke is improved after mirror therapy. During mirror therapy, a mirror is placed in the mid-sagittal plane thus reflecting movements of non-paretic side as if it were the affected side.