nerve applied on the paretic side. The second group receives the same rEPNS combined with sham tDCS. Motor performance and cortical excitability are tested at baseline and after the intervention at day 5, 15 and 30. The primary endpoint is the full time to complete the Jebsen and Taylor Hand Function Test (JTHFT).

Results.—So far, 17 patients have been included within the 5 days (±3) after stroke. No side effects have been reported during the treatment. Preliminary results show significant differences between the two groups at day 5 ($P = 0.006$) and day 15 $P = 0.04$) for the 14 patients who have ended the study (three are still on course).

Conclusion.—These promising results could suggest, as far as they will be further confirmed, that an early cortical neuromodulation with anodal tDCS in association with rEPNS, could act in the early post-stroke phase as an efficient adjuvant to promote the natural cortical plasticity involved in the recovery processes.

References

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Cipass: Trial of a daily program of cerebral stimulation by TMS using a PAS paradigm in the recovery phase of stroke patients
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Keywords: Stroke; Transcranial magnetic stimulation; Cerebral plasticity

Introduction and goals.—The Paired Associative Stimulation (PAS) is a non-invasive brain stimulation method that modulate cortical plasticity. The intervention consists of a combination of two stimulations: an electrical peripheral one and a magnetic cortical one with a frequency at 0.1 Hz over 30 min. The CIPASS is a new neuromodulation protocol where a PAS session is performed on a daily basis during 5 days to hemiparetic patients with a stroke (less than 6 months). This is a randomized, double-blind and placebo-controlled trial. Our goal is to demonstrate a lasting increase of motor cortical plasticity for wrist muscles. Our judgment criteria are electrophysiological and motors parameters.

Method.—Eight patients (five men and three women, mean age: 53 ± 6.2 years) have been included (Fugl-Meyer motor Scale = FMS, upper limb section: 23/66 ± 7); one session of PAS stimulation were applied to the Extensor Carpi Radialis (ECR) muscle on a daily basis during 5 days. The motor-evoked potential (MEP) surface of ECR muscle and the Fulg-Meyer motor Scale variations have been analysed.

Results.—An increase of MEP surfaces has been demonstrated, 3 days after the end of the last session, for patients of stimulated group (+300% ± 347%); and a less important increase for those of placebo group (+25% ± 28%). This translates a more important increase of motor cortical excitability for the stimulated group. It has also been reported motor performance improvements (FMS) for the stimulated group (+5.25 ± 3.3) and for the placebo group (+5.5 ± 3.9).

Conclusion.—The number of patients included is still low to allow us to draw conclusions. A daily program of PAS session seems to induce long-term changes in the excitability of corticospinal projection to wrist muscles in stroke patients up to 3 days following the end of the stimulation program; motor effects seems however less conclusive. These results have to be confirmed with a larger sample.

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The effect of video-guidance on passive and active movements as assessed by fMRI: Usefull for upper limb stroke rehabilitation?
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Keywords: fMRI study; Passive movement; Visual guidance; Stroke rehabilitation; Imitation; Active movement

Background.—Passive and active movements as well as action observation have a positive impact on recovery of motor function in stroke patients [1,2]. Combining action observation and movement execution might therefore also be a useful tool for rehabilitation. The aim of this study was to explore the neural networks involved in this approach in healthy subjects.

Methods.—Using fMRI block design, right hand movement performed by 17 right handed participants with (imitation) and without visual guidance was investigated. The movement tasks included both active execution of movement and passive movement, imposed by the examiner.

Results.—Movement imitation caused cortical activation in bilateral occipito-temporal areas both in passive and active movement. However, only active imitation led to activation in right inferior and superior parietal lobule, left frontal areas and cerebellum, whereas passive imitation activated right prefrontal cortex and the left supplementary motor area (SMA).

Conclusion.—These preliminary results indicate that different networks are activated during active and passive imitation tasks. The networks detected in our study are known to be important for functional recovery after stroke [3] and include attention, top-down control and reach to grasp movement for active imitation and a motor inhibitory network for passive imitation. These findings provide theoretical backing for the integration of active and passive movement with visual guidance in a new rehabilitation approach.

References

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Simplified instructional cards for the implementation of guided self-rehabilitation contracts for inpatients with spastic paresis
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Keywords: Guided Self-Rehabilitation Contracts; Simplified cards; Individual sessions; Group workshops; Logbooks

Objective.—The neurorehabilitation team of Albert Chenevier Hospital in Créteil (94) has developed Guided Self-Rehabilitation Contracts (GSC) providing paretic patients with an exercise manual containing explanations, illustrations and a logbook on which the patient notes daily performances [1]. The use of this manual has proven somewhat complicated for some patients,