

Neuro-rehabilitation Procedures Limited Efficacy in Most Patients with Neurological Disease

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Introduction

Rehabilitation of neuropsychological deficits is an emerging field of research and some papers of the Research Topic dealt with cognitive disorders. Zucchella reviewed, with a narrative approach, current evidence on non-pharmacological treatment in the treatment of Alzheimer's disease and dementia [1]. They concluded that, although NPT is often applied in the multidisciplinary approach to AD and dementia, supporting evidence is still preliminary, and suggested well-designed RCTs with innovative designs, and further studies to offer robust neurobiological grounds for NPT, and to examine the cost-efficacy profile. Pazzaglia and Galli presented a rehabilitative perspective focusing on the possibility of action observation as a therapeutic treatment for patients with apraxia [2]. They also outlined impacts on neuro-rehabilitation and brain repair following the reinforcement of the perceptual-motor coupling. This perspective might play a role for future interventions based primarily on action observation in patients with apraxia. Jang and Seo reported a mini-review on diffusion tensor tractography studies on mechanisms of recovery after injury of the anterior cingulum, a major structure in the limbic system, which is involved in various cognitive functions, including memory, attention, learning, motivation, emotion, and pain perception [3]. Despite most of the reviewed studies were case reports, they indicated that diffusion tensor tractography might be useful for the neuro-rehabilitation of patients with anterior cingulum injury. Fabbri presented a study protocol for an RCT exploring the effect of a multi-dimensional tele-rehabilitation program through a user-friendly web application in patients with mild cognitive impairment and vascular cognitive impairment [4]. The proposed tele-rehabilitation program includes cognitive, physical, and caregiver-supported social activities to promote and preserve an active lifestyle and counteract cognitive decline. Pain has been recognized as a common problem in patients undergoing neuro-rehabilitation, but its impact on rehabilitative procedures and the best treatment practices have been largely not explored. Castelnuovo reviewed the role of the placebo effect for pain relief in neuro-rehabilitation as part of the recommendations of the Italian Consensus Conference on Pain in Neuro-rehabilitation [5]. The Authors found that placebo treatments showed weak effects in central neuropathic pain, moderate effects in post therapeutic neuralgia, diabetic peripheral neuropathy, and pain associated to HIV, pain due to fibromyalgia and migraine and weak short-term effects in complex regional pain syndrome [6]. They recommended knowledge of placebo mechanisms to shape the doctor-patient relationship, to reduce the use of analgesic drugs and to train the patient to become an active agent of the therapy [7]. Falsiroli Maistrello reported a systematic review and meta-analysis of RCTs to establish the effectiveness of manual trigger point's treatment compared to minimal active or no active interventions in adults with primary headaches. Based on 7 RCTs, they concluded that manual trigger point's treatment of head and neck muscles may reduce frequency, intensity, and duration of attacks in tension-type headache and migraine, but the quality of evidence was very low for the presence of few studies, high risk of bias, and imprecision of the results [8]. Patients with lesions of the peripheral nervous system

frequently undergo neuro-rehabilitation and, among them, those with brachial plexus lesions are those with the most severe impairment. Ramalho explored bilateral sensory function in 17 patients with unilateral brachial plexus lesions [9]. The Authors found reduced touch threshold not only in the limb with brachial plexus injury, but also in the contralateral upper limb, where no nerve damage was documented. They interpreted these findings as related to a superordinate model of representational plasticity occurring bilaterally in the brain after a unilateral peripheral injury. The recent literature suggested that, by combining traditional rehabilitation techniques with new technological approaches, e.g., neuro-modulation, biofeedback recordings, novel robotic and wearable assistive devices, the amount of recovery might improve in comparison to traditional treatments. Some contributions of the Research Topic dealt with robotic rehabilitation in upper-limb stroke and MS patients.

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Conflict of Interest

None

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