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Rapid Communication

Neurological Rehabilitation in Patients with Spinocerebellar Ataxia: it's Really Effective and Permanent?

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The Spinocerebellar Ataxias (SCA) are part of the structure of hereditary diseases that progress with the gradual degeneration of the cerebellum and its ways, causing changes mainly in balance and motor coordination. The effects of the approaches of physiotherapy in the treatment of SCA and the methodological quality of studies have been analyzed in recent times, many still with conflicting results [1].

Considering that such organ functions as a major generator of control, modulating the descending pathways to harmonize the movements and other functions, it is simple to understand how lesions in this structure are able to cause multiple motor damages with implications in basic and instrumental activities of daily living of these people - many irreversible [1,2].

The physical therapy interventions found in current literature include training of balance and protection reactions, gait and coordination exercises; strengthening, orthostatic vibration, and even the application of transcranial magnetic stimulation has been proposed. Lately, even gait training with trained dogs has proved to be a good strategy supporting the rehabilitation [3-7].

That's the big question of this short communication: Until when are patients able retain the feedbacks provided by physiotherapists? Numerous questions are raised by us. Being an organ that requires time and repetition to restore its functions, which would be the time, intensity, duration and frequency of activities to effectively influence the remodeling of this structure? Is this organ really capable of remodeling?

Our doubts are strengthened by numerous evidence on crucial contribution of the cerebellum in motor learning process. Several studies show that patients with cerebellar lesions showed severe deficiencies in learning of motor tasks. For this reason, some authors have questioned whether the rehabilitation of patients with SCA might produce any positive effect on its motor condition [8,9]. As it is an opinion letter, we believe that facing what`s found in the current literature, there is no consensus regarding the prescription of therapeutic exercises.

The exercises (type, frequency and intensity) must respect the particularities of patients - with frequent revaluations. Unfortunately, there is a complete lack of randomised or quasi-randomised clinical trials examining physical rehabilitation in this population. Poor cooperation on behalf of patients when the disease begins to cause complete dependence, small sample size, uncontrolled and short-duration trials, remain the main handicaps. Another great difficulty in the analysis of these data takes place due to the fusion of patients with spinocerebellar ataxia with other injuries of the cerebellum, such as strokes, tumors, malformations, demyelinating diseases.

Apparently, keeping the improvement obtained with the operations depends on the continuity of exercise. Ilg et AL e Miyai [10,11] recommended the daily practice of their protocols to patients to further assess whether there was long-term retention, something that happened in all cases. Shiga [12] also maintained the application of TMS pulses with better results in the group that continued to receive frequent applications. On the other hand, Dias et al [13]. Reported maintenance of improvements after 30 days of the end of the intervention, even without continuing training.

Still, it is difficult to distinguish whether the lack of retention of benefits after an exercise program is due to progressive degeneration characteristic of the disease, to the inability to retain patterns of learned movsements or to the need to elect more appropriate exercise for these patients.

References

1. Chaubey VK, Chhabra L, Kapila A. Ataxia: a diagnostic perplexity and management dilemma. BMJ Case Rep. 2013.
2. Kim WS, Jung SH, Oh MK, Min YS, Lim JY, Paik NJ, et al. Effect of repetitive transcranial magnetic stimulation over the cerebellum on patients with ataxia after posterior circulation stroke: A pilot study. J Rehabil Med. 2014; 46: 418-423.
3. Marquer A, Barbieri G, Pérennou D. The assessment and treatment of postural disorders in cerebellar ataxia: a systematic review. Ann Phys Rehabil Med. 2014; 57: 67-78.
4. Keller JL, Bastian AJ. A Home Balance Exercise Program Improves Walking in People With Cerebellar Ataxia. Neurorehabil Neural Repair. 2014.
5. Miyai I. [Neurorehabilitation for spinocerebellar degeneration]. Rinsho Shinkeigaku. 2013; 53: 931-933.
6. Kaut O, Jacobi H, Coch C, Prochnicki A, Minnerop M, Klockgether T, et al.

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A randomized pilot study of stochastic vibration therapy in spinocerebellar ataxia. Cerebellum. 2014; 13: 237-242.

7. Abbud G, Janelle C, Vocos M. The use of a trained dog as a gait aid for clients with ataxia: a case report. Physiother Can. 2014; 66: 33-35.
8. Maschke M, Gomez CM, Ebner TJ, Konczak J. Hereditary cerebellar ataxia progressively impairs force adaptation during goal-directed arm movements. J Neurophysiol. 2004; 91: 230-238.
9. Ioffe ME, Ustinova K, Chernikova LA, Kulikov MA. Supervised learning of postural tasks in patients with poststroke hemiparesis, Parkinson's disease or cerebellar ataxia. Exp Brain Res. 2006; 168: 384-394.
10. Ilg W, Brötz D, Burkard S, Giese MA, Schöls L, Synofzik M, et al. Long-term effects of coordinative training in degenerative cerebellar disease. Mov Disord. 2010; 25: 2239-2246.
11. Miyai I, Ito M, Hattori N, Mihara M, Hatakenaka M, Yagura H, et al. Cerebellar ataxia rehabilitation trial in degenerative cerebellar diseases. Neurorehabil Neural Repair. 2012; 26: 515-522.
12. Shiga Y, Tsuda T, Itoyama Y, Shimizu H, Miyazawa KI, Jin K, et al. Transcranial magnetic stimulation alleviates truncal ataxia in spinocerebellar degeneration. J Neurol Neurosurg Psychiatry. 2002; 72: 124-126.
13. Dias ML, Toti F, Regina S, Almeida M, Oberg TD. Efeito do peso para membros inferiores no equilíbrio estático e dinâmico nos portadores de ataxia. Acta Fisiátrica. 2009; 16: 3-7.

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