Aim: To explore the benefit of the LTES using the Mollii suit to subdue symptoms of ataxia and improve function in a community setting.

Literature Review

• NICE guidelines for Multiple Sclerosis (2019) do not specify any recommendations for the treatment of ataxia in Multiple Sclerosis
• Anecdotal evidence suggests that ataxia as a symptom is difficult to treat and see carryover in function
• All recommended treatment modalities for patients with ataxia and complications require further research (Blates et al., 2016)
• Recently, there have been some emerging case study evidence using the Mollii suit for management of spasticity and ataxia (Schuhfried et al., 2012 and Reed, 2018)
• At time of publication there were no RCT or independent comparative observational studies completed. (NICE, 2017)

Methodology

The Mollii suit was developed in Sweden by Inervations AB and is supplied in the UK by Remotion Ltd. It utilises low frequencies at 20 Hz (below level of muscle contraction to allow spinal cord reflex to allow spinal reflexes to occur). It targets spinal reflexes to alleviate their disruption, based on the mechanisms of activity versus underactivity in any upper motor neuron lesion. It selects the underactive muscles over the more active at the spinal cord level (reciprocal inhibition).

Identification of Participant

Inclusion Criteria
- Adults or children with spasticity, muscle tone, ataxia, dysmetria and other forms of motor impairment due to neurological impairment

Exclusion Criteria
- Implanted electrical devices or medical devices affected by magnets e.g. pacemaker, etc

Cautions
- Uncontrolled epilepsy, cardiovascular disease, malignancy (cancer), infectious disease, fever, rash, skin problems

Methods

Pre intervention outcomes measures completed

Suit worn 1 hour daily for 3 days prior to admission; and then daily for first 2 weeks of admission. This regimen was reduced to alternate days for the remaining period of the study

4 weeks inpatient rehabilitation, input ranging from 8 to 10 sessions per week

Measures repeated post intervention

Follow up measures were repeated 4 weeks later to assess carry over effect. Participant continued home programme during this period

Data Collection
1. Modified Fatigue Impact Scale (MFIS)
2. Motricity Index and Trunk Control Test
3. Scale for the Assessment and Rating of Ataxia (SARA)
4. Arm Activity Measure (ArMA)
5. Video analysis including time taken for Arm movements (5 repetitions), drinking from water hydrant tube, slide transfer and walking

Goals
1. Reduction in the time taken and improvement in fluidity of movement when using the water hydrant
2. Improvement in the speed, quality and control of movement when transferring through flexion
3. To be able to play with a ball or balloon with his 18 month old son
4. To explore walking with an adapted frame

Results

Goal 1: He was able to walk 100 metres using the pulpit frame with assistance from 2 therapists; 1 therapist guided the hips and the other was required to stabilise the frame. The participant did not walk for over a year prior to this.

Conclusion

Combining Mollii suit regimen with active therapy input helped to subdue the symptoms of ataxia, which had significant carry over effect in the participant’s functional performance

Recommendation

It is recommended that the participant engage in further intensive rehabilitation in an inpatient setting. In addition, further studies are required to evaluate the effectiveness of LTES using the Mollii suit with other individuals with ataxia and other movement disorders.

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