

NewroSpeaks

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Message from

Prof. Dr. Sharan Srinivasan, CMD, PRS Neurosciences
Management of disabling ‘harmful’ Spasticity

Spasticity is a frequently encountered clinical condition and a ‘bugbear’ for neuro rehab professionals worldwide with no apparent ‘cure’. Spasticity may be either ‘useful’ by compensating decrease in motor strength - or ‘harmful’ - by limiting both passive and active motion and, in the extreme, by leading to irreducible contractures and deformities - or as in most cases and harmful and useful in the same patient. A large population of adults and children in developing countries and in wealthy societies as well is suffering from this locomotor disability. Excess of spasticity leads to a disability that is marked by impaired locomotion and, if not controlled, handicapping deformities, discomfort, and pain. When spasticity is disabling, many treatments are currently available. If spasticity fails to be controlled by relaxant medications and physical therapy and escapes rehabilitation programs, neuromodulation procedures aiming to diminish the excess of tone and rebalancing the agonist and antagonist muscle groups can be the remedy. They may help improve function and limit irreversible deformities. Complementary orthopedic surgical corrections are often required though.



“Never lose hope

*- Made by Abhishek Pattanaik
A butterfly is the proof that
beauty can emerge from
something after completely
falling apart. It symbolized true
transformation!*

About this newsletter

The importance of academic discussion and sharing of information in the field of neuroscience and neurorehabilitation must be reinforced. We conduct weekly academic programs which we share via this newsletter Do revert to us with comments and feedbacks to newroacademics@gmail.com.



V. Siddharth

Senior Occupational Therapist
Advanced Neuro Rehab Specialist,
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Take home message

It is important to differentiate 'useful' spasticity from 'harmful' spasticity. This needs hours of observation and training when it comes to translating neuroscience to functional ability.

As a part of a comprehensive and advanced neurorehabilitation team, it is the therapist's responsibility to provide sound and calculated feedback to the neuromodulation interventionist so that the client achieves the best possible result in the least possible time.

Take away pearls

Spasticity evaluation is beyond just a MAS or a Tardeu score. It is crucial to understand the needs of the client and their family and then choose the most appropriate option for spasticity management

An Algorithm for Spasticity Assessment

Background

Worldwide, spasticity is the 'bugbear' for every professional dealing with neurologically impaired clients with brain and spine involvement. It is of utmost importance for the rehab professional to formulate guidelines or an algorithm to help guide through the labyrinth of spasticity management.

Solution – a customized spasticity assessment algorithm

The algorithm for spasticity management must consider who is requesting for the evaluation and in what context. Without the context, the evaluation will be misleading. It is also important to know if the solution suggested is 'permanent' or 'reversible' also determines a big chunk of the pre-procedure and post procedure spasticity evaluation and management. This requires a standard way of recording data which is comparable within and across the patients & assessors.

Additional benefits of neuromodulation for spasticity

As per our inhouse data and on-going data analysis, on average any patient who lands up with a spasticity grade of MAS 2+ or above needs min 4-6 weeks to inhibit the spasticity alone in absence of neuromodulation techniques. Early and timely use of spasticity-reduction techniques can bring down the time for restorative rehabilitation by atleast 50%. These techniques begin with oral medications and then go onto either botulinum toxin injections (for focal spasticity) or even Intra-Thecal Baclofen (ITB) for severe generalized spasticity.

Key features of our algorithm

The assessment is done by the treating therapist and the one of the key reasons for suggesting interventions is - either a difficulty in Passive or Active ROM, or in functional activities. We at Newro believe in early and 'smart' management of harmful spasticity so that complications can either be avoided or prevented and outcomes optimized and maximized

(Visit www.newrorehab.com and www.jiomsn.com)



“Case study on role of neuromodulation in management of spasticity in a SCA patient”

By **Nikhil CH**
HOD, Department of Physiotherapy

Take away pearls

When there is a spasticity which is resistant to Oral medications, consider intra thecal baclofen pump as an option to improve quality of life.

ITB pump is one of the techniques which has a reversible effect on the spasticity. It can be regulated in real time to regulate how much baclofen can be released based on the functional outcome.

This a collaborative process. The neuromodulation and neurorehabilitation team must communicate in the benefit of patient outcomes.

Case Summary

Brief history & initial story:

This 38 years old, 6 feet 2 inch gentle man was diagnosed with hereditary Spino-Cerebellar Ataxia (SCA) about 7 years back. He was working as a software company until 2013 from which he had to resign due to this progressively debilitating disease. He has a 6-year-old son and his wife is the only earning member of the family. At present, due to problems in all 4 limbs, he is completely dependent for even basic self-care. He would crawl to the washroom every morning because he didn't want to use the wheelchair! Even his speech was dysarthric (unclear). He could not express himself clearly because of dysarthria which made it even worse emotionally, because he loved to talk. He even attempted intentional self-harm due to all this. He also had severe & persistent pain in both his lower limbs which lasted at least 20-22 hours in a day!

During rehab:

During the evaluation we identified severe spasticity and spasms in the limbs and trunk associated with severe pain. He also had trunk ataxia and dystonia which made it impossible to participate even the easiest of daily life task like brushing, eating & even sitting! He was at Level-1 on our Functional Independence scale. He was on 50mg of oral baclofen (for his spasticity), but it did not give any benefit. We hence suggested that he undergo a trial of intra-thecal baclofen right in the start, but they waited for 5 months and tried regular and intense neurorehabilitation with us. He gained some benefit, but they were looking for further progress & hence opted for the trial.

Procedure done:

During the trial, catheter was inserted up to D3 level under aseptic conditions by our functional neurosurgeon. We did a comprehensive evaluation as per the Newro's ITB trial evaluation protocol and dosage was adjusted accordingly.

The target was to:

- Find out the amount of reduction in spasticity and its relation to the movements and the functional implications
- Relationship between Pain & His spasticity
- Possible benefit on speech impairments due to spasticity

Outcome :

He had complete resolution of pain and spasticity reduced by 50 percent based on the ITB evaluation protocol. As a result, his active movements improved which were partially achieved post neurorehabilitation. He started doing his ADLs much better than before. We concluded, the spasticity is a big component to his functional limitation. After the trail he said “I have hope in my life now which was lost long ago”



Jain institute of movement disorders and stereotactic neurosurgery in collaboration with PRS Neurosciences

Journal

‘Effect of ITB on spasticity and painful spasm in inherited SCA.’

Action Suggested:

- We want to build a database of cases with conditions leading to spasticity and provide ITB as a solution to facilitate the recovery so that neurorehabilitation can gain momentum with early and promising results.
- The combination of neuromodulation using ITB trial and comprehensive neurorehabilitation using advanced management software like NewroLogix must be scientifically established.

Take away pearls

ITB trial or ITB pump once implanted and found to have no major side effects ; can be life transforming for the patients!

Journal Club

Title of the article: Inherited Ataxia and Intrathecal Baclofen for the Treatment of Spasticity and Painful Spasms

Authors: Shala G. Berntssona, Helena Gauffinc, Atle Melberga et.al.

Place of work: Department of Neuroscience, Neurology and Neurosurgery, Uppsala University, University Hospital, Uppsala, Sweden; Department of Clinical and Experimental Medicine, Neurology, Medical Faculty, University of Linköping, Linköping, Sweden

Journal: Stereotactic and Functional Neurosurgery

Impact factor: 2.04

Abstract: Background: Intrathecal baclofen (ITB) treatment is considered a powerful tool in the management of severe spasticity in neurological conditions such as multiple sclerosis, cerebral palsy, and traumatic spinal cord and brain injury.

Objectives: The objective of this study was to assess the effectiveness of the ITB in patients with inherited ataxia suffering from severe painful spasms and/or spasticity. Method: A total of 5 patients with spinocerebellar ataxia 3 or 7 or Friedreich’s ataxia were included in this observational multicenter study. The patients were interviewed and completed outcome measures assessing pain (The Brief Pain Inventory), fatigue (Fatigue Severity Scale), and life satisfaction (LiSAT-9) before and 1 year after the treatment. Spasticity (Modified Ashworth Scale) and spasm frequency (SPFS) were measured objectively for each patient.

Results: The mean treatment time was 1.9 years. Evaluation of established standard forms revealed symptomatic relief from spasticity, spasms, pain, and fatigue in addition to improved body posture, sleep, and life satisfaction after ITB treatment.

Conclusions: We report the potential beneficial effects of ITB treatment in patients with inherited ataxia who also suffer from spasticity/spasms. ITB treatment indication in neurological disorders allows for extension to the treatment of spasticity/spasms in patients with hereditary ataxia.

Implication: At PRS Neurosciences, we believe that neuromodulation should not happen either as ‘the last resort’ or ‘by chance’, but, as a treatment of choice & appropriately timed. This journal supports the use of neuromodulation to facilitate not only improvement of functional abilities but also the quality of life of even patients with progressive neurological diseases.

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