PHYSICAL REHABILITATION IN A WOMEN WITH GUILLAIN-BARRÉ SYNDROME ON THE EXAMPLE OF A CLINICAL CASE

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Introduction to Guillain-Barre Syndrome

- Guillain Barre Syndrome (GBS) is inflammatory demyelinating polyneuropathy.
- It’s self-limited auto-immune disease which target peripheral nervous system, GBS in our case triggered by preceded Campylobacter Jejune infection.
- Neuromuscular rehabilitation is used for treatment patients with GBS.

Introduction to Zero G-gait system and Redcord Neurac method

- A new results has been achieved using the combination of the Zero G-gaited system in combination of Redcord of Neurac method .
- Both Techniques are highly specific and are used invedually to treat various diseases .
- Over the years both techniques had proved their importance in the rehabilitation canters by the highly beneficial results that been achieved on the patients that undergoes the rehabilitation process using those techniques

What is Zero G-gait and Neurac method

Zero G-gait system : is a body wight support system , unloading the paretic limb allowing the patient to practice high number of steps in safe environment .

Achieving the maximum mobility by stimulation of walking and elimination the fear of falling that will lead to neuromuscular activation initiating muscular recovery .

Neurac method : A system focusing on deep neuromuscular activation by execution of a program depending on the muscle power and coordination with agonist and antagonist muscle movements .

How the combined therapy works?

- By using the gait system and stimulation of different exercises we approximately target all muscular groups and activating them .
- Stabilization of some muscle groups could be tricky to be achieved by the gait system or some muscles that do not works normally need to be assisted by the Redcord system (Neurac method).
- Using of Neurac method will re-educate the muscles at neuromuscular level forming a pathway of coordination of the affected muscle group correcting the agonist/ antagonist movement .

Diffrence between the Zero G-gait system and Neurac method

- The gait system will activate the muscles that are used in the mobility exercise (e.g. walking or climbing stairs) , focusing on increasing strength .
- Usually the distal muscles are targeted group for the G-gait system due to it highly affection and achieving the lowest power in various diseases
- In Neurac method we are focusing on smaller muscle groups and correcting false movements , as will Neurac method focuses on deep muscular activation that are failed to be activated by the gait system .

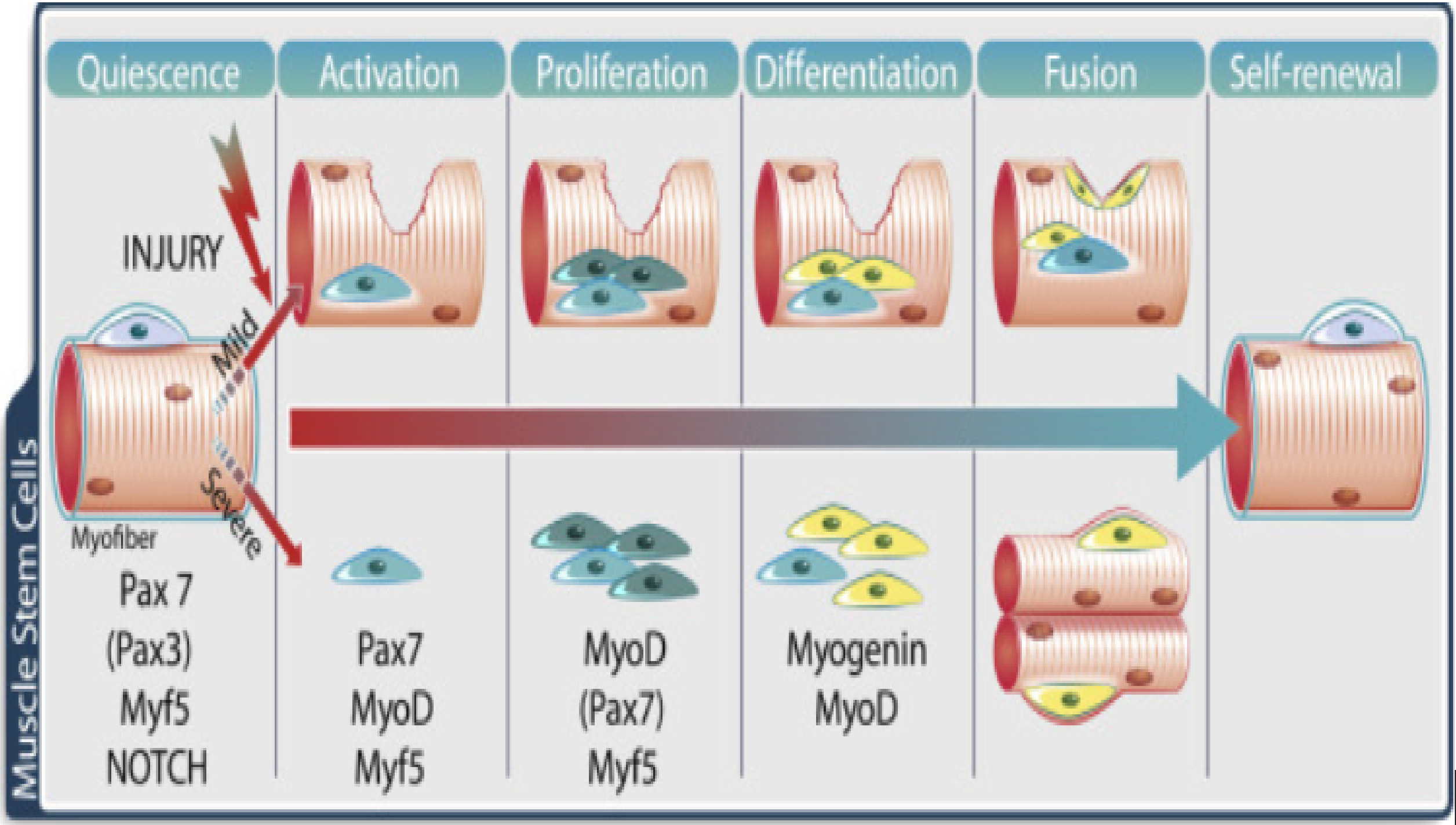
Suspension Exercise

Mechanism of action

- The basis for flaccid paralysis is conduction block , Absence of action potential and ACh delivery to the muscles for a long period of time lead to myocytes atrophy and weakness , As the reinnervation occur the muscles remain in state of atrophy and weakness .
- The using of the Zero G-gait system in combination with Neurac method will start to stimulate the myocytes even at neuromuscular level by increasing their motility and contraction .

The mechanism of action on atrophied muscles

- The stimulation of atrophied muscles will improve muscle function by improving the anaerobic/aerobic balance preventing the accumulation of lactic acid.
- The Gold standard of stimulation is to stimulate the regenerative capacity of satellite cells.
- Once the goal is achieved the satellite cells will provide the structural parts that is necessary to take them out of the atrophied state.


Quiescence
Activation
Proliferation
Differentiation
Fusion
Self-renewal
INJURY
Mild
Severe
Myofiber
Muscle Stem Cells
Pax 7
(Pax3)
Myf5
NOTCH
Pax7
MyoD
Myf5
MyoD
(Pax7)
Myf5
Myogenin
MyoD

Clinical Case

Aim of the study

- To study the advantages of the Zero-G gait trainer harness system in combination with the redcord system of Neurac method for rehabilitation of patients with Guillian Barre Syndrome
- Studying the effectiveness of the treatment plan and the outcomes before and after the rehabilitation sessions.
- Evaluation of patient progression regarding the Blood Pressure value in combination with the treatment plan that been made to treat GBS.

Anamnesis Vitae

- MS,S.B , women , 29 years old .
- Patient complains about periodical headache, dizziness, increased blood pressure, quadriplegia, pain in proximal muscles and bilateral facial weakness.
- She had a previous history of Comylobacter Jejuni infection preceded 3 weeks later by GBS attack.

Before Rehabilitation

- Heart tones - muffled, tachycardia. Blood pressure (BP) 145/83 mm/Hg.
- Complete blood count (CBC) - leukocytosis (neutrophilia). Creatinine - increased. ECG-sinus arrhythmia. MRI - demyelination of peripheral nerves. Electro diagnostic study - decrease conduction velocity. Quadriplegia (power 1/5) in all limbs. Poor functional abilities.

Drugs used before rehabilitation

- Amlodipine (Ca channel blocker): 10 mg/day; was divided upon 2 intakes orally {PO}. With a separation interval of 8 hours
- Gabapentin : 900 mg/day ; was divided upon 3 intakes orally {PO}. With a separation interval of 8 hours
- Xefocam (NSAIDs) : 8mg/day ; was given a daily single dose IM .
- Clopidogrel : 75 mg/day ; was given a daily single dose orally {PO} at night .
- Tolperisone (myorelaxant) : 150 mg/day ; was divided upon 3 intakes orally {PO} .
- Omeprazole : 20 mg/day ; was given a daily single dose orally {PO} .
- Neurobion (Vitamin B complex supplement) : 3 taps a day.
- Patient didn’t report any edemas presence so there was no need to withdraw Amlodipine from the therapy .

Drugs used after rehabilitation

- After 20 sessions divided between the G-gait system and the Redcord system of Neurac technique the following results has been established :
- Daily monitoring of her BP showed stabilization of her BP values to 130 mmHg .
- On bases of those values the following drugs has been continued :
- Amlodipine: 5 mg/day; was divided upon 2 intakes orally {PO}. With a separation interval of 8 hours .
- Paracetamol : 500 mg/day ; in required .

Results after rehabilitation

- Heart tones – sinus rhythm . Blood pressure (BP) 130/75 mm/Hg .
- CBC - normal. Improved facial function. Moderate motor recovery. Showed improvement in HADS score (A4/D3). Limbs achieved power of 3-4/5. Creatinine - normal. Electro diagnostic study - increase in motor nerve conduction velocity.

Patient status after therapy

- She has improvements in her functional abilities, She can walk slowly without assistant, She can perform her daily life tasks without assistance.
- Regarding the pain she state that it's tolerable and reduces as the therapy sessions go on by time .
- The patient state that she experience a little weakness in her legs after walking for a long distance .


Thank you