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Case Report

Effectiveness of Structured Physiotherapy in Guillain-Barre Syndrome: A Detailed Case Report

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Abstract: ***Background*:** Guillain-Barre Syndrome (GBS) is an acute, rapidly progressing immune-mediated polyneuropathy characterized by symmetrical muscle weakness, diminished or absent reflexes, and variable sensory impairment. Early diagnosis and a combination of medical and physiotherapeutic interventions are crucial in mitigating the long-term sequelae of the disease. ***Case Summary*:** A 25-year-old previously healthy female presented with progressive bilateral limb weakness and sensory disturbances following a febrile illness. Diagnostic workup confirmed the AIDP variant of GBS. She received standard IVIG therapy followed by a structured 30-day physiotherapy program emphasizing neuromuscular re-education, strength restoration, functional mobility, and pain management. Functional and clinical outcomes were documented pre- and post-intervention. ***Results*:** Marked improvements were observed in muscle strength (MMT from 1/5 to 4/5), functional independence (FIS from 65/120 to 105/120), and pain intensity (NPRS from 8 to 5). The Hughes Functional Grading Scale improved from grade 4 (bedridden) to grade 2 (ambulatory with assistance). ***Conclusion*:** This case highlights the vital role of timely, individualized physiotherapy in facilitating recovery in GBS. A structured, phased approach significantly enhanced motor performance, reduced pain, and improved quality of life.

Keywords: Guillain-Barré Syndrome, AIDP, Physiotherapy, Neurorehabilitation, Functional Recovery, Proprioceptive Neuromuscular Facilitation, IVIG.

1. INTRODUCTION

Guillain-Barre Syndrome (GBS) is the most common cause of acute flaccid paralysis globally, with a reported incidence of 0.81–1.89 per 100,000 individuals annually (Willison *et al*., 2016). It often follows infections such as Campylobacter jejuni, cytomegalovirus, or Epstein-Barr virus, where molecular mimicry leads to an autoimmune attack on peripheral nerve components.

The AIDP variant prevalent in North America, Europe, and India involves demyelination of motor nerves, leading to conduction slowing and eventual neuromuscular weakness. Clinically, patients may experience symmetric weakness, paraesthesia, reduced or absent tendon reflexes, and, in severe cases, respiratory distress.

Medical management typically IVIG or plasma exchange can halt disease progression. However, physiotherapy plays a pivotal role in recovery by restoring mobility, preventing contractures, preserving respiratory function, and facilitating reintegration into daily life.

This case report presents a structured rehabilitation approach for a young adult with AIDP and documents measurable outcomes across strength, function, and pain.

2. CASE DESCRIPTION

2.1 Patient Information

Age/Gender: 25-year-old female.

Past Medical History: Unremarkable.

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Presenting Complaints:

- Progressive bilateral limb weakness
- Burning and tingling sensations in hands and feet
- Inability to perform ADLs or ambulate
- Preceded by a febrile illness (~15 days earlier)

2.2 Clinical Examination

Domain	Findings
Motor	Generalized hypotonia MMT: 1/5 in all limbs
Reflexes	Absent at knee and ankle reduced biceps reflex
Sensory	Glove-and-stocking paraesthesia Pain rated NPRS 8/10
Respiratory	No distress; SpO_2 98% room air; breath sounds clear
Function	Bedridden; Hughes Grade 4; FIS score: 65/120

3. DIAGNOSTIC ASSESSMENT

3.1 Cerebrospinal Fluid (CSF) Analysis

- Protein: 111 mg/dL
- WBC Count: Normal
- Interpretation: Albuminocytologic dissociation, characteristic of GBS

3.2 Nerve Conduction Study (NCS)
Motor Nerves:

- Prolonged distal latency
- Reduced CMAP amplitudes
- Absent F-waves in peroneal and ulnar nerves

Diagnosis: Acute Inflammatory Demyelinating Polyradiculoneuropathy (AIDP), consistent with Brighton Level 1 criteria

4. THERAPEUTIC INTERVENTION

4.1 Medical Management

- IVIG: 0.4 g/kg/day × 5 days
- Gabapentin: 300 mg/day for neuropathic pain

4.2 Physiotherapy Rehabilitation Program (30 Days)
Rehabilitation was planned in three phases based on clinical progression:

Phase I: Acute Stage (Days 1–7)

Goals:

- Prevent joint stiffness, muscle atrophy, and pressure sores
- Maintain respiratory function
- Initiate early neural input

Interventions:

- Passive Range of Motion (PROM): 20 repetitions, twice daily for all joints
- Positioning Techniques: Proper limb alignment with pillows; ankle-foot orthoses to prevent contractures

Respiratory Care:

- Diaphragmatic breathing
- Incentive spirometry: 10 breaths/hour

Education: Family trained for assisted PROM and turning

Phase II: Subacute Stage (Days 8–21)
Goals:

- Begin active movements
- Improve trunk control and transfers
- Enhance sensory-motor re-integration

Interventions:

- PNF Patterns: Rhythmic stabilization and alternating isometrics for trunk
- Assisted Active Exercises: Quadriceps and gluteal sets, Wall slides
- Bed Mobility Training: Rolling, bridging, supine-to-sit
- TENS Therapy: High-frequency (80 Hz), 100 µs for 10 minutes over pain sites

Phase III: Recovery Stage (Days 22–30)
Goals:

- Progress to ambulation
- Train dynamic balance
- Reintroduce functional tasks

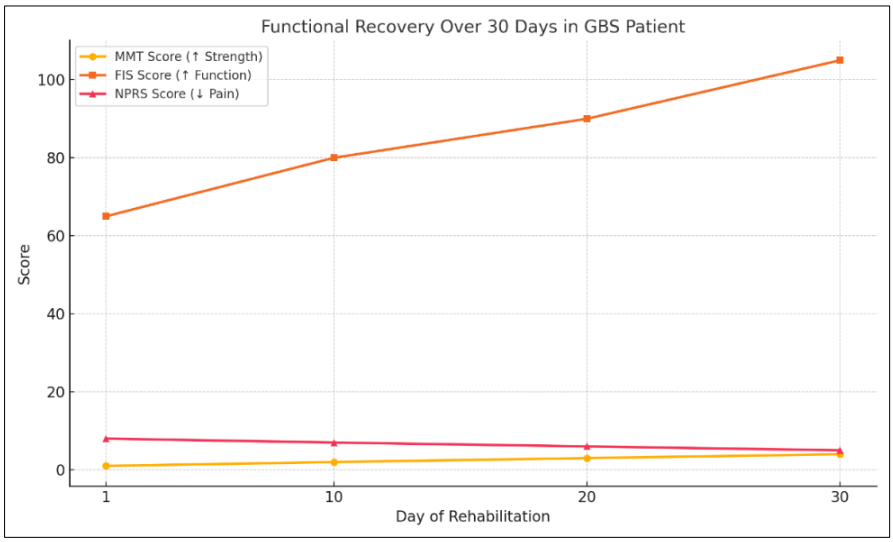
Interventions:

- Sit-to-Stand Drills: With assistance initially
- Parallel Bar Gait Training: Gradually increasing distance to 10 meters
- Balance Tasks: Tandem stance, single-leg stand with support
- Simulated ADLs: Dressing, grooming with assistive aids
- Soft Tissue Mobilization: Gentle myofascial release around shoulders and lower back

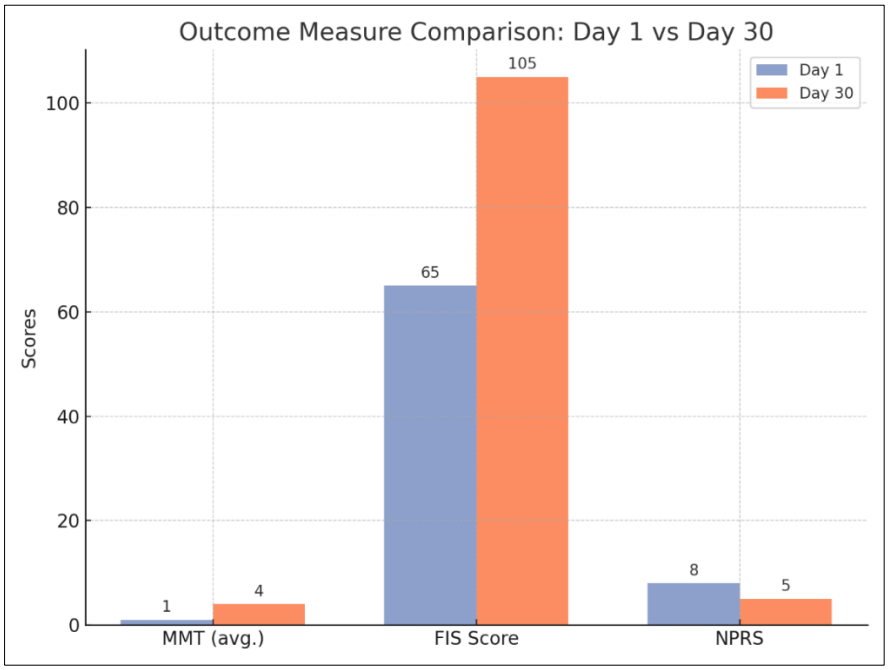
5. OUTCOMES AND FOLLOW-UP

5.1 Functional Improvements

Parameter	Day 1	Day 30
MMT (UL & LL avg.)	1/5	4/5
Hughes Functional Scale	Grade 4	Grade 2
Functional Independence Scale	65/120	105/120
NPRS (Pain Scale)	8/10	5/10



Graph 1: Progressive improvement in muscle strength (MMT), functional independence (FIS), and reduction in pain (NPRS) over the 30-day physiotherapy intervention



Graph 2: Comparison of key outcome measures (MMT, FIS, and NPRS) before and after the 30-day physiotherapy protocol, highlighting clinical gains in strength and function with reduced pain

5.2 Clinical Observations

- Achieved unsupported sitting by Day 18
- Ambulated 10 meters with walker by Day 28
- No signs of respiratory compromise throughout course
- Significant improvements in bed mobility and transfers
- No complications like pressure ulcers or DVT were noted

6. DISCUSSION

This case highlights the critical timing and strategic planning required in the physiotherapy management of GBS. While IVIG addresses immunological components, physiotherapy remains essential in functional restitution.

Physiological Rationale:

- Early mobilization improves motor neuron recruitment, enhances proprioceptive feedback, and prevents use-dependent muscle loss.
- Sensory stimulation and graded load-bearing provide crucial stimuli for nerve reinnervation and remyelination.

Limitations:

- Single case study; broader conclusions require multicenter trials
- Long-term follow-up (e.g., 6 months, 1 year) was not documented
- Rehabilitation was limited to 30 days due to resource constraints

7. CONCLUSION

Structured and progressive physiotherapy, initiated early in the disease course, significantly contributes to the recovery of patients with Guillain-Barré Syndrome. The integration of neurofacilitation techniques, functional training, and pain management can enhance outcomes, reduce disability, and facilitate faster return to daily living.

Ethics and Consent

The patient provided written informed consent for publication. Ethical approval was not required for a single-patient case study as per institutional guidelines.

REFERENCES

- Willison HJ, Jacobs BC, van Doorn PA. Guillain-barre syndrome. The Lancet. 2016 Aug 13;388(10045):717-27.
- van Doorn PA. Guillain-Barré syndrome. InDysimmune Neuropathies 2020 Jan 1 (pp. 5-29). Academic Press.
- Adler SS, Beckers D, Buck M. PNF in practice: an illustrated guide. Springer Science & Business Media; 2013 Oct 27.
- Hughes RA, Swan AV, Van Doorn PA. Intravenous immunoglobulin for Guillain-Barré syndrome. Cochrane Database of Systematic Reviews. 2014(9).
- Gawande I, Akhuj A, Samal S, Gawande IV I. Effectiveness of physiotherapy intervention in guillain barre syndrome: a case report. Cureus. 2024 Jan 10;16(1).
- Arya NP, Seth NH, Raghuveer R, Sewani Y, Arya N. Exploring the Efficacy of Physiotherapy in Guillain-Barré Syndrome Through Virtual Reality-Based Rehabilitation: A Case Report. Cureus. 2024 Apr 26;16(4).
- Jha J, Khan H, Gupta S. Physiotherapy for Guillain–Barré syndrome: A case report. MGM Journal of Medical Sciences. 2024 Jan 1;11(1):173-6.
- Dimitrova A, Izov N, Maznev I, Grigorova-Petrova K, Lubenova D, Vasileva D. Physical therapy and functional motor recovery in patient with Guillain-Barré Syndrome-Case report. European Scientific Journal. 2017 Nov 30;13(33):11-9.
- Amer M, Muriqi X, Khosravi M, Şenel M, Mustafaoglu R. Current Treatment Approaches for The Management of Guillain Barre Syndrome: A Narrative Review of Physiotherapy Approaches: Current Treatment Approaches for The Management of Guillain Barre Syndrome. Advances in Chronic Diseases. 2024 Mar 29;1(1).
- Wankhade S, Qureshi MI, Kovela RK, Menon S, Bele AW. Effectiveness of focused and goal-oriented physiotherapy in the recovery of a patient with Guillain–Barré syndrome [Internet]. 2024
- Mascarenhas R, Nair AG, David N, Verma B, Gandhi DB. From Critical Care to Community: A Case Report on Guillain-Barré Syndrome Rehabilitation.

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