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Effectiveness of Constraint induced Movement Therapy on Lower Limb Function in Monoplegia: A Case Study

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ABSTRACT

Introduction: Stroke is one of the leading causes of motor impairments, which significantly impact an individual's functional mobility and quality of life. While much attention has been directed towards upper limb rehabilitation, the importance of lower limb recovery is equally critical in improving overall mobility and independence. Constraint-Induced Movement Therapy (CIMT) has demonstrated substantial effectiveness in enhancing motor function in the upper limbs of stroke survivors. However, its application to the lower limbs, particularly in cases of monoplegia, is less understood and has not been as extensively researched. This case study explores the potential impact of CIMT on improving the function of the paretic lower limb in a patient with monoplegia following a stroke.

Aim: The effectiveness of CIMT for improving lower limb function and voluntary muscle control in monoplegia.

Materials and Methods: The case study involved a 48-year-old female patient who presented with monoplegia following an ischemic stroke. The patient had a medical history of diabetes mellitus and hypertension and displayed significant motor deficits in the left lower limb, which required 75% assistance for mobility. CIMT protocol was implemented for a duration of 4 weeks, where the patient's unaffected limb was constrained, forcing the use of the paretic lower limb during daily functional tasks and therapy sessions.

Results: After completing the 4-week CIMT , notable improvements were observed in the patient's gait quality, muscle strength, voluntary muscle control, and overall mobility. The statistical analysis of pre- and post-treatment assessments demonstrated significant improvements.

Conclusion: This case study indicates that CIMT has the potential to improve lower limb function in monoplegia, particularly in enhancing voluntary control and mobility. However, further research involving larger sample sizes and longer treatment durations is needed to confirm the broader applicability and long-term benefits of CIMT in lower limb rehabilitation.

Keywords: Lower limb rehabilitation, Stroke rehabilitation, Voluntary muscle control.