

From Critical Care to Early Functional Recovery: Physiotherapy Rehabilitation in Anterior Cerebral Artery Infarct: A Case Study

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ABSTRACT

Background: The medial frontal lobe is affected by anterior cerebral artery (ACA) infarcts, which frequently manifest as diminished motor initiation, poor balance, and contralateral lower limb weakness. In order to avoid problems and improve healing, early physical therapy is essential.

Case Description: A 58-year-old man was hospitalized to the intensive care unit (ICU) with diminished awareness and paralysis in his left lower leg due to a right ACA infarct. The patient needed ventilator assistance at first, then NIV, and finally room air.

Intervention: The implementation of an organized physiotherapy program included gradual functional training, positioning, passive mobility, respiratory care, and sensory stimulation.

Outcome: Over the course of two weeks, there was a noticeable increase in trunk control, motor strength, respiratory condition, and functional independence.

Conclusion: For stroke patients in the intensive care unit, early, organized physical therapy promotes neurological recovery and prevents complications.

Keywords: ACA infarct, early mobilization, ICU physical therapy, neuroplasticity, stroke rehabilitation.

INTRODUCTION

Stroke continues to be one of the major causes of mortality and long-term disability globally, placing a heavy strain on people, families, and healthcare systems. It is described as an abrupt stoppage of cerebral blood flow that causes neurological impairments that last longer than twenty-four hours or cause death. About 80–85% of stroke cases are ischemic strokes, which are caused by cerebral artery blockage that results in brain tissue infarction [1].

Anterior cerebral artery (ACA) infarction is comparatively less prevalent than middle cerebral artery (MCA) involvement among the many vascular regions involved in ischemic stroke. However, because ACA infarcts affect the medial parts of the frontal and parietal lobes, they exhibit unique and clinically significant features. The supplementary motor region, paracentral lobule, and portions of the prefrontal cortex are among the cerebral hemispheres' medial surfaces that are mostly supplied by the ACA. These areas play a crucial role in higher executive functions, voluntary movement initiation, and motor planning [2]. Because of this anatomical distribution, ACA infarcts usually cause contralateral lower limb paralysis, which is frequently more severe than upper limb involvement. Patients may also have gait abnormalities, poor posture control, and trouble starting voluntary movements. Neurobehavioral abnormalities include

abulia, decreased desire, poor judgment, and in extreme situations, akinetic mutism, can also result from frontal lobe involvement. The patient's functional independence and general quality of life may be severely impacted by these deficiencies.

In addition to motor impairments, stroke patients often face a variety of secondary problems, especially during the acute and critical stages. These include deep vein thrombosis, pressure sores, joint stiffness, muscular atrophy, respiratory impairment, and decreased cardiovascular endurance. Patients admitted to the Intensive Care Unit (ICU), where extended immobility and critical illness further enhance the likelihood of functional loss, are particularly prone to these problems [3]. Because of the brain's increased neuroplastic potential, the early stages after stroke are thought to be crucial for recovery. The nervous system's capacity to rearrange its structure and function in reaction to damage and outside stimuli is known as neuroplasticity. Research indicates that rehabilitation interventions that are early, repeated, and task-specific can improve brain reorganization and encourage functional recovery. On the other side, delayed rehabilitation may result in maladaptive alterations that further reduce the likelihood of recovery [4].

Physiotherapy is essential to the multidisciplinary care of stroke patients, especially in the acute and subacute stages. In intensive care unit (ICU) settings, physiotherapy aims to maintain respiratory function, prevent secondary problems, and gradually reintroduce functional activities in addition to motor rehabilitation and other goals. In order to prevent pulmonary problems, respiratory physiotherapy procedures such as breathing exercises, posture, and chest physiotherapy are crucial, particularly for patients who need ventilator assistance. Another crucial element of stroke recovery is early mobilization. It entails starting functional activities and movement as soon as the patient is medically stable. Early mobilization can enhance functional results, shorten hospital stays, and lower the risk of comorbidities including pressure ulcers and deep vein thrombosis, according to studies [3].

Rehabilitation for patients with ACA infarcts is particularly difficult because lower limb paralysis and poor motor start are common. Frontal lobe dysfunction is frequently linked to difficulty beginning movement, which can restrict active engagement in therapy and impede functional recovery. To improve motor activation and engagement, physiotherapy interventions must include tactics like verbal cueing, facilitation techniques, and task-oriented training. Preventing musculoskeletal problems is a crucial component of rehabilitation for stroke patients in critical condition. Joint contractures, muscular shortening, and postural abnormalities can result from extended immobilization. Maintaining joint integrity and muscle extensibility requires regular positioning, passive and active-assisted range of motion exercises, and appropriate limb alignment. To increase cortical activation and raise awareness of the afflicted limb, sensory stimulation techniques may also be employed. A key element of functional recovery after a stroke is trunk control. It provides the framework for coordinated movement, postural stability, and balance. ACA infarcts frequently result in impaired trunk control, which can severely restrict the patient's capacity to carry out tasks including sitting, standing, and walking. Therefore, early training that emphasizes postural alignment, weight shifting, and trunk stability is essential for promoting functional growth. There is still no research particularly addressing physiotherapy management in patients with ACA infarcts during the ICU phase, despite the increasing amount of evidence promoting early rehabilitation. The majority of current research concentrates on stroke rehabilitation in general, with comparatively less attention paid to critical care environments and territory-specific strategies.

This emphasizes the necessity of thorough case studies that record these individuals' clinical presentation, rehabilitation techniques, and results. The purpose of this case study is to investigate the impact of early, systematic physiotherapy rehabilitation on an ICU-admitted patient with an anterior cerebral artery stroke.

It emphasizes the significance of stage-specific intervention, ongoing monitoring, and customized treatment planning as it tracks the development of rehabilitation from the critical care phase to early functional recovery.

This case study aims to add to the body of knowledge and offer insights into successful physiotherapy management techniques for ACA infarcts in intensive care units by recording the clinical course, therapeutic interventions, and results. Additionally, it emphasizes how important early intervention is to maximizing recovery and averting long-term disability.

Case Presentation

On December 6, 2025, a 58-year-old man was brought to the emergency department complaining of sudden decreased responsiveness and weakness, primarily in the left lower leg. Family members reported that the patient had trouble starting voluntary activities, decreased spontaneous movements, and diminished interaction.

The patient had been taking antihypertensive medicine on a regular basis and had a history of hypertension. Diabetes mellitus, a prior stroke, trauma, seizures, or loss of bladder and bowel control were not present. There was no history of recent surgery or infections.

The patient was moved right away to the Intensive Care Unit (ICU) for careful observation and care because upon admission, their level of awareness had decreased. The patient needed mechanical ventilatory assistance during the acute phase because of impaired neurological status and decreased breathing effort.

An ischemic lesion in the medial frontal lobe of the right anterior cerebral artery (ACA) area was discovered by magnetic resonance imaging (MRI) of the brain. The imaging results showed a correlation with the clinical manifestation of poor motor initiation and contralateral (left) lower limb weakness.

Standard medical treatment for ischemic stroke, antiplatelet therapy with aspirin, statin therapy with atorvastatin, and hypertension management with amlodipine, was administered to the patient in the intensive care unit. Heparin was used as a prophylactic for deep vein thrombosis, combined with pantoprazole for stomach protection and citicoline for neuroprotective support. The patient was kept on room air after being weaned from mechanical ventilation to non-invasive ventilation (NIV).

After hemodynamic stability, a thorough clinical and physiotherapy evaluation was carried out on December 7, 2025. In order to avoid additional issues and promote an early recovery, physiotherapy rehabilitation was started that same day.

On December 21, 2025, following two weeks of structured physiotherapy, a post-assessment was carried out.

Timeline of Events

Admission Date: December 6, 2025. Mechanical ventilation was started when the patient was admitted to the intensive care unit. Aspirin, atorvastatin, amlodipine, heparin, citicoline, and pantoprazole were the first medications used for medical management.

Date of Evaluation and Initiation of Physiotherapy: December 7, 2025. Physiotherapy was started after a thorough evaluation.

ICU phase: With ongoing medical and physiotherapy care, the patient was progressively weaned from the ventilator, NIV, and room air.

Post-assessment date: December 21, 2025. Motor function, trunk control, respiratory condition, and functional independence all improved upon reassessment.

Clinical Findings

After hemodynamic stabilization, a thorough neurological and physiotherapy evaluation was carried out on December 7, 2025. The patient was initially less responsive and had less spontaneous movements while lying supine in the intensive care unit bed. Over time, these symptoms gradually improved. Despite his increased blood pressure, which was consistent with his known history of hypertension, vital indicators remained stable under medical care.

A score of 12/15 (E3, V4, M5) on the Glasgow Coma Scale (GCS), a neurological examination, indicated a moderate impairment of consciousness with retained ability to localize pain and respond to verbal cues. The two sides were clearly asymmetrical, according to a motor evaluation utilizing Manual Muscle Testing (MMT). While the left upper limb showed mild to severe weakness ranging 3/5 across muscle groups, the right upper and lower limbs demonstrated normal strength of about 5/5. With hip flexors and knee extensors rated at 1/5, hip extensors and knee flexors at 2/5, and ankle dorsiflexors and plantar flexors at 2/5, the left lower limb displayed significant weakness that was consistent with ACA infarct involvement. (Table-3)

The tone grading system was used to assess muscle tone, and the results showed hypotonia in the left lower limb (1+), which is characteristic of the acute flaccid stage of stroke and indicates reduced resistance to passive movement. (Table-1)

Reflex testing revealed normal deep tendon reflexes on the right side but reduced ones on the left (0), including the biceps, triceps, supinator, knee (patellar), and ankle (Achilles). Superficial reflexes showed a bilateral flexor plantar response and a diminished abdominal reflex on the left side, indicating early neurological involvement without spasticity. (Table-2)

Impairment was seen in both the equilibrium and non-equilibrium components of coordination assessment. The patient's ability to conduct the heel-to-shin test on the left side and the finger-to-nose test was hindered, with slow and irregular quick alternating movements, according to non-equilibrium testing. There was a noticeable delay in motor initiation. (Table 4.1, Table 4.2). Poor trunk control, the inability to sit unassisted, and the need for outside assistance were all signs of reduced postural stability, according to the equilibrium coordination assessment. The patient's inability to sit independently was further confirmed by the balance evaluation, even though supported sitting was accomplished. At this point, standing and dynamic balancing exercises were not feasible. (Table-5)

A total score of roughly 61–65/126 indicated considerable dependency when functional independence was measured using the Functional Independence Measure (FIM). While cognitive areas like comprehension (6), expressiveness (6), and social interaction (6) were mostly maintained, the patient needed moderate to maximal assistance in motor domains like bathing (2), lower limb dressing (2), transfers (1–2), and walking (1).

According to the ICU Mobility Scale (IMS), the patient's mobility status in the ICU was rated as 1, meaning that they were bedridden and could only move passively.

Respiratory evaluation demonstrated early ventilator reliance with decreased chest expansion and weak cough effort, which subsequently improved with medication and physiotherapy care. There were no visible signs of open wounds, deformities, pressure sores, or muscle atrophy. There was a urine catheter in place

and an intravenous access in the left forearm. None of the four limbs had any edema or tenderness when palpated.

The major lower limb weakness, hypotonia, poor coordination, decreased motor initiation, poor trunk control, and high functional reliance were all indicative of a right anterior cerebral artery infarct.

Table 1. demonstrating muscle tone (TGS)

Muscle Group	Right Side	Left Side
Shoulder Flexors	2+	2+
Shoulder Extensors	2+	2+
Shoulder Abductors	2+	2+
Shoulder Internal Rotators	2+	2+
Shoulder External Rotators	2+	2+
Elbow Flexors	2+	2+
Elbow Extensors	2+	2+
Wrist Flexors	2+	2+
Wrist Extensors	2+	2+
Hip Flexors	2+	1+
Hip Extensors	2+	1+
Knee Flexors	2+	1+
Knee Extensors	2+	1+
Ankle Dorsiflexors	2+	1+
Ankle Plantar flexors	2+	1+

Tone Grading System (TGS): 0: no increase in tone, 1+: decrease tone, 2+: normal tone, 3+: increase tone.

Table 2. demonstrating reflex grading

Reflex	Right Side	Left Side
Plantar	flexor	flexor
Abdominal	2+	0
Biceps	2+	1+
Triceps	2+	1+
Supinator	2+	1+
Knee (Patellar)	2+	1+
Ankle (Achilles)	2+	1+

0: absent, 1 +: present but depressed, 2 +: normal, 3 +: exaggerated, 4 +: clonus always abnormal.

Table 3. demonstrating muscle strength (MMT)

Muscle Groups	Right Side	Left Side
Shoulder Flexors	5/5	3/5
Shoulder Extensors	5/5	3/5
Shoulder Abductors	5/5	3/5
Shoulder Internal Rotators	5/5	3/5
Shoulder External Rotators	5/5	3/5

Elbow Flexors	5/5	3/5
Elbow Extensors	5/5	3/5
Wrist Flexors	5/5	3/5
Wrist Extensors	5/5	3/5
Hip Flexors	4/5	1/5
Hip Extensors	4/5	2/5
Hip Abductors	4/5	2/5
Hip Internal Rotators	4/5	2/5
Hip External Rotators	4/5	2/5
Knee Flexors	4/5	2/5
Knee Extensors	4/5	1/5
Ankle Dorsiflexors	4/5	2/5
Ankle Plantar Flexor	4/5	2/5

0: no contraction, 1: flickering contraction, 2: full range of motion (ROM) with gravity eliminated plane, 3+: full range of motion against gravity, 4+: full range of motion against a gravity moderate resistance, 5: full range against gravity, maximum resistance.

Table 4.1. Coordination and Equilibrium Assessment

Test	Right	Left
Finger to Nose	4	3
Finger Opposition	4	3
Pronation/Supination	4	3
Rebound Test	4	2
Hand Tapping	4	3
Foot Tapping	4	1
Heel to knee	4	1
Drawing a Circle	4	1

Table 4.2.

Test	Grade
Standing – Normal Posture	N/A
Standing – Eyes Closed	N/A
Standing – Feet Together	N/A
Single limb Standing	N/A
Tandem Walking	N/A
Sideways Walking	N/A
Backward Walking	N/A
Walking on Heels	N/A

Table 5. demonstrating Functional Balance Assessment

Balance Type	Test	Remarks
Static Sitting	Sitting unsupported for 30 secs	Unable to maintain the balance
Dynamic Sitting	Reaching within base of support	Unable to reach within limited range, trunk sway present
Static Standing	Standing with support	Unable to perform
Dynamic Standing	Weight shifting with support	Unable to perform

Table 6. demonstrating Functional Independence Measure (FIM) Assessment

Domain	Item	Score (1-7)	Remarks
Self -Care	Eating	5	Require setup assistance
	Grooming	4	Requires minimal assistance
	Bathing	2	Maximal assistance required
	Dressing- Upper Body	4	Requires minimal assistance
	Dressing- Lower Body	2	Maximal assistance required
	Toileting	2	Maximal assistance required
Sphincter Control	Bladder	6	Modified Independence
	Bowel	6	Modified Independence
Transfers	Bed/Chair/Wheelchair	2	Maximal assistance required
	Toilet	2	Maximal assistance required
	Tub/Shower	2	Maximal assistance required
Locomotion	Walking	1	Total assistance
	Stairs/Wheelchair	1	Total assistance
Communication	Comprehension	6	Modified Independence
	Expression	6	Modified Independence
Social Cognition	Social Interaction	6	Modified Independence
	Problem Solving	6	Modified Independence
	Memory	6	Modified Independence

- Total FIM Score: 61 / 126
- Motor FIM: 39 / 91
- Cognitive FIM: 30 / 35

Diagnostic Assessment

A combination of radiological evidence and clinical presentation led to the diagnosis of anterior cerebral artery (ACA) infarct. Suspicion of a vascular neurological event was aroused by the patient's sudden onset diminished responsiveness and significant weakness of the left lower leg. An ischemic infarct involving the medial frontal lobe in the right anterior cerebral artery area was established by magnetic resonance imaging (MRI) of the brain. The observed motor impairments, especially the contralateral lower limb weakness and decreased motor beginning, were clinically linked with this anatomical involvement. The diagnosis was confirmed by additional clinical assessment. A neurological examination showed a reduced level of consciousness with a Glasgow Coma Scale score of 12/15, as well as significant motor weakness

in the left lower limb (MMT: 1+/5 in hip flexors and knee extensors), hypotonia (Modified Ashworth Scale: 0–1), and diminished deep tendon reflexes on the affected side. These results were in line with the acute flaccid stage of ischemic stroke.

The likelihood of cerebrovascular insult was significantly increased by the patient's history of persistent hypertension.

Among the differential diagnosis taken into consideration were:

- Due to the lack of face paralysis and mainly upper limb involvement, middle cerebral artery infarct was ruled out.
- Because upper limb function was maintained and there were no segmental sensory losses, spinal cord disease was ruled out.
- MRI results ruled out intracranial bleeding

Throughout the ICU stay, vital signs, neurological status, and functional advancement were continuously monitored to evaluate the course of the illness and the effectiveness of treatment.

Overall, radiological evidence and consistent clinical observations supported the diagnosis of right anterior cerebral artery infarct.

Physiotherapy Intervention

On December 7, 2025, physiotherapy rehabilitation began after the patient's hemodynamic stabilization in the intensive care unit. The patient's neurological health, pulmonary condition, and exercise tolerance were taken into consideration when designing the stepwise, structured intervention. To ensure a safe transition from passive management to early functional recovery, the rehabilitation program had been split up into phases.

Phase I: Acute ICU Phase (Ventilator support stage)

Goals-

- Promote ventilation and keep the airways clear.
- Avoid secondary problems such deep vein thrombosis, contractures, and pressure sores.
- Maintain muscle integrity and joint mobility

Interventions-

- Positioning: To avoid pressure ulcers and enhance ventilation-perfusion matching, reposition every two hours.

Physiotherapy for the respiratory system:

- Techniques for chest physical therapy that include vibration and percussion
- Exercises for breathing as tolerated
- Facilitating the clearance of the airway.

PROM, or passive range of motion:

- Ten to fifteen repetitions, two to three times a day, for all major joints

Positioning the Limbs:

- Aligning correctly to avoid malformations

Stimulation of the senses:

- Enhancing neural activity through tactile and proprioceptive inputs

Phase II: Early Recovery Phase (Post Ventilator/ NIV Stage)**Goals-**

- Encourage voluntary movement
- Boost postural stability and trunk control
- Start functional mobility early.

Interventions-**AAROM, or active-assisted range of motion:**

- Focus to the affected trunk and lower limbs.

Training for Bed Mobility:

- Weight shifting, rolling, and assisted bridging

Exercises for Trunk Control:

- Facilitated sitting with assistance
- Training for static sitting balance

Task-Based Activities:

- Reaching within the base of support

Neuromuscular Assistance:

- Using tactile and verbal cues to improve motor initiation

Phase III: Progressive Functional Training Phase**Goals-**

- Enhance level of independence
- Improve coordination and balance
- Boost tolerance to activity

Interventions-**Dynamic Sitting versus Supported Sitting:**

- Gradual decrease the support

Training in Balance:

- Sitting balance: static and dynamic

Exercises for Strength:

- High-repetition, low-intensity exercises

Functional Training:

- Independence of bed mobility
- Pre-transfer activities

The rehabilitation protocol was progressively modified based on the patient's tolerance and clinical improvement, with the overall aim of enhancing functional independence and promoting neurological recovery in the early phase of the condition.

Basis of Intervention

In the present case, the physiotherapy intervention focused on early, systematic, and patient-specific rehabilitation and was founded on existing stroke rehabilitation standards and neuroplasticity principles. Early mobilization was carried out in accordance with research indicating that, when medically stable, starting rehabilitation within the first 24 to 48 hours enhances functional outcomes and lowers comorbidities such as pressure ulcers and deep vein thrombosis [3]. In accordance with ICU rehabilitation

protocols that emphasize the significance of airway clearance, lung expansion, and prevention of pulmonary complications in critically ill patients, respiratory physiotherapy interventions were included because of the patient's initial ventilator dependence [5].

According to stroke therapy guidelines, passive and active-assisted motions were initiated early to preserve joint mobility and avoid contractures [4]. The idea that repetitive, goal-oriented activities improve cortical restructuring and motor recovery through neuroplastic mechanisms served as the foundation for the shift toward active and task-specific training. Because they provide the basis for functional tasks including sitting, standing, and locomotion, trunk control and postural stability training were highlighted. Research indicates that early trunk rehabilitation has a major impact on stroke patients' overall functional recovery [6]. Impaired motor initiation, a frequent hallmark of anterior cerebral artery infarcts due to frontal lobe involvement, was addressed with neuromuscular facilitation approaches, such as verbal and tactile cueing.

Overall, the intervention used an evidence-based, goal-oriented, and stage-specific approach that maximized functional recovery while guaranteeing safe development.



Figure 1.

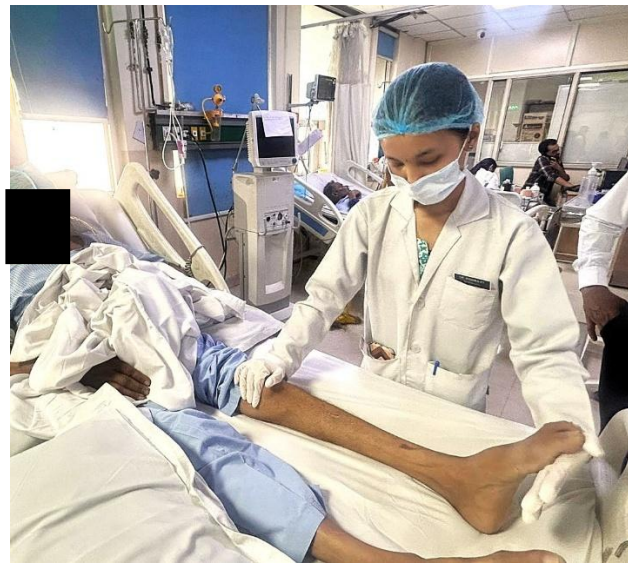


Figure 2.

Figure 1 and 2. Demonstrating Passive Range of Motion Exercise to maintain muscle integrity and joint mobility in early ICU phase



Figure 3. demonstrating pursed lip breathing



Figure 4.



Figure 5.

Figure 4 and 5. demonstrating diaphragmatic breathing



Figure 6. demonstrating strength training under minimal therapist resistance

Post- Assessment (After 2 Weeks of ICU-Based Rehabilitation)

After two weeks of systematic ICU-based physiotherapy rehabilitation, a post-assessment was carried out on December 21, 2025. The patient's neurological, respiratory, and functional state had significantly improved upon reevaluation.

The Glasgow Coma Scale improved from 12/15 to 14/15, suggesting improved responsiveness and interaction, and the patient's level of consciousness improved. The patient's respiratory condition considerably improved when they were successfully transitioned from mechanical ventilation to non-invasive ventilation (NIV) and were thereafter able to sustain appropriate oxygen saturation on room air on their own.

The impaired left lower limb's strength has improved, according to a motor evaluation. Ankle dorsiflexors and plantar flexors increased from 2/5 to 3/5, while hip flexors and knee extensors improved from 1+/5 to 3-/5 according to manual muscle testing. Additionally, the proximal trunk muscles showed improvement, which helped to improve postural control.

The left lower limb's muscle tone gradually returned to normal from the initial examination, but it was still slightly hypotonic. The damaged side's reflexes showed some improvement, although they were still significantly diminished.

An evaluation of coordination and balance showed better trunk stability and motor start. The patient went from being unable to stay seated to being able to sit with little help for brief periods of time. While standing and dynamic balance exercises were still unachievable at this point, static seated balance had improved. The Functional Independence Measure (FIM) functional evaluation showed progress from roughly 60–65/126 to 75–85/126, indicating moderate improvements in bed mobility, transfers, and self-care tasks.

The ICU mobility status, as measured by the ICU Mobility Scale (IMS), increased from 1 to 3, signifying a shift from passive bed mobility to assisted sitting at the bed's edge.

During the rehabilitation phase, there were no secondary problems like pressure sores, joint contractures, or respiratory infections. Overall, after receiving systematic physiotherapy, the patient showed increased trunk control, respiratory independence, exercise tolerance, and early functional recovery.

Discussion

The current case study emphasizes the need of early, planned physical therapy rehabilitation in the treatment of a patient hospitalized to the intensive care unit due to an anterior cerebral artery (ACA) stroke. After two weeks of therapy, the patient showed clinically significant improvements in trunk control, motor function, respiratory function, and functional independence. Because the medial frontal lobe and supplementary motor regions are involved, ACA infarcts typically manifest as mainly contralateral lower limb paralysis and poor motor initiation [2]. Similar results were seen in this instance, where the patient showed significant left lower limb weakness, poor trunk control, delayed motor initiation, and high dependence during the acute period.

The positive results shown in this patient were probably influenced by the early start of physiotherapy after hemodynamic stabilization. Research indicates that early mobilization following a stroke improves functional recovery, increases neuroplasticity, and lessens problems related to extended immobilization [3]. In this instance, neurological recovery and the avoidance of ICU-related problems may have been aided by early interventions like positioning, respiratory physiotherapy, passive mobilization, and a gradual transition to active-assisted exercises.

Because the patient was dependent on mechanical breathing during the acute ICU phase, respiratory physiotherapy was crucial. The successful weaning from ventilatory support and enhanced respiratory function may have been facilitated by techniques focused on airway clearance, chest expansion, and posture. Previous research highlighting the value of physiotherapy in critically ill patients for improving functional recovery and preventing pulmonary problems supports our findings [5].

Since trunk stability forms the basis for higher functional activities like transfers, standing, and walking, the observed improvement in trunk control and sitting balance is clinically relevant. According to Verheyden et al. (2006), functional recovery after a stroke is closely linked to trunk performance. In this instance, early restoration of postural control was suggested by the development from incapacity to sit to supported sitting.

The improvement in FIM and ICU Mobility Scale scores after rehabilitation further demonstrated functional improvement. Improvements in motor initiation, bed mobility, and supported sitting indicate encouraging early recovery trends, even though independent standing and ambulation were not attained during the research period. The patient's severe lower limb weakness and brief rehabilitation period may be the cause of their ongoing limits in advanced mobility. Lesion site, severity, age, medical comorbidities, and level of rehabilitation all have an impact on stroke recovery [4].

The significance of stage-specific, evidence-based physiotherapy therapies in critically ill stroke patients is supported by this case study. Improved clinical and functional results can be greatly enhanced by early rehabilitation that emphasizes trunk control, respiratory care, complication prevention, and progressive functional training.

However, the study's short follow-up period and single-case methodology limit how broadly the results may be applied. Future studies with larger sample sizes and longer follow-up periods are recommended

to further evaluate the effectiveness of ICU-based rehabilitation protocols in ACA infarct patients.

Conclusion

In a patient with an anterior cerebral artery infarct, early, organized physical therapy rehabilitation improved trunk control, motor function, respiratory status, and functional independence while the patient was in the intensive care unit. Early functional recovery was facilitated and later problems were avoided with the aid of an evidence-based, stage-specific rehabilitation program. In order to maximize rehabilitation outcomes for critically ill stroke patients, this case emphasizes the significance of prompt physiotherapy intervention.

Acknowledgement

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Ethical Approval

Ethical approval for this case study was obtained from the Institutional Ethics Committee of the respective institution prior to the commencement of the study. The study was conducted in accordance with ethical principles and guidelines for clinical research.

Consent to Participate

Written informed consent was obtained from the patient prior to inclusion in the study. The patient was informed about the nature, purpose, and procedures involved in the study, and participation was entirely voluntary.

Consent for Publication

Written informed consent was obtained from the patient for publication of clinical details and accompanying images. All efforts have been made to maintain patient confidentiality and anonymity.

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