Majalah Ilmiah Fisioterapi Indonesia
Indonesian Scientific Journal of Physiotherapy

Case Reports / Case Studies
ISSN (Print): 2303-1921
ISSN (Online): 2722-0443
Volume 14, Number 03, Pages 1189-1193 (2026)
DOI: https://doi.org/10.24843/mifi.000002387

Neuromuscular Physiotherapy Intervention for Right-Sided Monoparesis Following Nonhemorrhagic Stroke: An Inpatient Case Report

Nur Ilmi Dilwa Putri[1], Meutiah Mutmainnah Abdullah[2], Sri Wahyuni N.[3]

[1,2]Professional Physiotherapy, Faculty of Nursing, Hasanuddin University, Makassar, Indonesia
[3]Dadi Regional General Hospital, Makassar, Indonesia

Corresponding author:
Name: Nur Ilmi Dilwa Putri
E-mail: ilmidilwa@gmail.com
Phone: 0851-6125-0114

Received 11 August 2026; Revised 18 August 2026; Accepted 19 August 2026; Published 29 September 2026.
©2026 The Authors. Published by the Physiotherapy Study Program, Faculty of Medicine, Udayana University, in collaboration with the Indonesian Physiotherapy Association (Ikatan Fisioterapi Indonesia). This is an open-access article distributed under the terms of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).

Abstract

Background: Stroke can cause motor, sensory, coordination, balance, and functional impairments. Monoparesis is an uncommon motor presentation that may complicate functional recovery and rehabilitation planning.

Objective: This case report aimed to describe physiotherapy assessment, multimodal intervention, and observed short term functional changes in a patient with right sided monoparesis following nonhemorrhagic stroke during inpatient rehabilitation.

Methods: A case report was conducted in a 50-year-old man with nonhemorrhagic stroke and right sided monoparesis. The patient had a history of smoking and was independent in mobility and activities of daily living before stroke onset. Two individual physiotherapy sessions were delivered on 18 and 20 April 2026, lasting 30 and 40 minutes, respectively.

Results: After the two sessions, pain sensation became detectable in the shoulder and elbow regions. Elbow strength increased from Manual Muscle Testing grade 3 to 4, while shoulder and wrist strength remained at grade 2. Berg Balance Scale score increased from 30 to 38 and Barthel Index from 50 to 60. National Institutes of Health Stroke Scale score remained 7, Hoffmann reflex remained positive, and coordination deficits persisted.

Conclusion: Observed changes occurred across selected sensory, motor, balance, and functional domains. Because this was a single case with a short multimodal intervention, no comparator, and no follow up, the changes cannot be attributed specifically to physiotherapy or any individual intervention component.

Keywords
Ischemic Stroke; Paresis; Rehabilitation; Upper Extremity; Physical Therapy Specialty

Introduction

Stroke is a major neurological condition and an important cause of death and long-term disability worldwide. Stroke can result from either ischemic or hemorrhagic mechanisms and may cause a wide range of neurological impairments, including motor weakness, sensory disturbance, impaired coordination, balance deficits, and reduced functional independence. Among these consequences, motor impairment is one of the most common and clinically significant problems because it can directly interfere with mobility and activities of daily living. Early rehabilitation is therefore an important component of stroke management to minimize disability and support functional recovery.[1]

Motor impairment following stroke most commonly presents as hemiparesis or hemiplegia involving one side of the body. However, stroke may occasionally present with more localized motor impairment, including monoparesis, in which weakness is predominantly restricted to one limb. Monoparesis following stroke may be less readily recognized than the more typical hemiparetic presentation and may create diagnostic challenges, particularly when the weakness resembles peripheral neuropathy or musculoskeletal dysfunction.[2] Careful neurological and functional assessment is therefore important to identify the relationship between the observed impairment and the underlying central nervous system lesion.

In addition to muscle weakness, patients with stroke may experience sensory impairment, abnormal muscle tone, impaired coordination, postural instability, and limitations in functional activities. These impairments may interact with one another and influence the patient's ability to perform purposeful movement. From an International Classification of Functioning, Disability and Health perspective, impairments at the body function level may contribute to activity limitations and restrictions in participation. Physiotherapy assessment should therefore consider not only muscle strength but also sensory function, coordination, balance, and functional independence to establish an appropriate rehabilitation diagnosis and treatment plan.[3]

Physiotherapy rehabilitation after stroke may involve multiple approaches according to the patient's clinical presentation and functional limitations. Therapeutic exercise, active or active assisted movement, strengthening, sensory stimulation and reeducation, coordination training, balance exercises, proprioceptive neuromuscular facilitation, and task specific training may be incorporated to address different components of sensorimotor dysfunction. Task specific and repetitive practice may be particularly relevant for improving the patient's ability to perform meaningful functional activities. A multimodal approach may therefore be appropriate when several impairments coexist, although the contribution of individual treatment components cannot be determined from a single case receiving multiple interventions.[3]

Recovery after stroke is influenced by spontaneous neurological recovery, individual characteristics, lesion characteristics, and rehabilitation. Neuroplasticity and motor learning are commonly proposed as mechanisms underlying functional recovery after stroke. Repeated practice and sensory motor stimulation may theoretically facilitate adaptation within remaining neural networks. However, these mechanisms cannot be directly confirmed in an individual case without specific neurophysiological or neuroimaging assessment. Therefore, clinical improvement observed during rehabilitation should be interpreted cautiously, particularly during the early post stroke period when spontaneous recovery may occur concurrently with physiotherapy.[4]

Although physiotherapy interventions for post stroke motor impairment have been widely described, much of the available clinical literature focuses on patients with hemiparesis or hemiplegia. Reports specifically describing physiotherapy management of monoparesis following stroke are comparatively limited. The localized pattern of weakness may require careful integration of neurological findings, sensory examination, motor assessment, coordination, balance, and functional evaluation to guide clinical reasoning and treatment planning. Detailed case reports may provide useful clinical information regarding assessment and rehabilitation strategies for less common stroke presentations.[5]

Therefore, this case report aimed to describe the physiotherapy assessment, clinical reasoning, multimodal intervention, and short-term functional changes observed after two physiotherapy sessions in a patient with right sided monoparesis following nonhemorrhagic stroke during inpatient rehabilitation.

Methods

This case report describes physiotherapy management of a patient with right sided monoparesis following nonhemorrhagic stroke during inpatient rehabilitation at the Medical Rehabilitation Installation of RSKD Dadi Makassar. The report was prepared with reference to the CARE Guideline, and the intervention description was structured according to TIDieR principles where applicable.

The patient was a 50-year-old man who developed sudden symptoms while performing work related activity on 13 April 2026. No previous disease was reported. Smoking was the documented stroke risk factor. Medication history before and after stroke onset was not available. Before stroke onset, the patient was independent in mobility and activities of daily living, could walk and change position without an assistive device, and could independently eat, dress, bathe, toilet, and work.[2]

Diagnostic examination was performed on 15 April 2026 using CT. MSCT of the head showed a subcortical infarction involving the left frontoparietotemporo occipital lobe and left corona radiata. The lesion was in the left cerebral hemisphere; a specific vascular territory was not stated. The etiological classification was not available. Aphasia and right sided monoparesis were documented. A formal differential diagnosis for peripheral neuropathy or musculoskeletal disorders was not documented.

The physiotherapy assessment identified sensory disturbance, muscle weakness, impaired coordination, impaired balance, and reduced functional independence. Sensory examination assessed sharp and blunt or pain, temperature, and touch. Manual Muscle Testing showed weakness of the right shoulder, elbow, and wrist. Finger to nose and finger to finger testing demonstrated dysmetria and inaccurate movement. Baseline BBS was 30 and Barthel Index was 50. Within an ICF oriented framework, the body function impairments were linked to activity limitations, particularly difficulty using the right upper extremity for grasping and selected activities of daily living. The physiotherapy diagnosis was functional limitation associated with right upper limb sensorimotor impairment following stroke, characterized by reduced muscle strength, impaired sensory discrimination, impaired coordination, balance limitation, and reduced independence in selected activities of daily living.[4]

Two individuals, face to face physiotherapy sessions were provided in the physiotherapy room after the patient was transported from the inpatient ward. Session 1 was performed on 18 April 2026 for 30 minutes and session 2 on 20 April 2026 for 40 minutes. All intervention components were provided in both sessions. The program included infrared therapy, sensory stimulation, sensory re education, manual muscle belly and tone stimulation, shoulder approximation, active assisted range of motion, isometric exercise, coordination exercise, balance exercise, proprioceptive neuromuscular facilitation, and task specific training.

The second session involved increased exercise intensity and duration based on the patient's response and tolerance during the first session. The patient completed the prescribed program and demonstrated good participation. The intervention was provided by a physiotherapist or physiotherapy student according to case implementation; specific professional competence was not available. The author confirmation form indicated that all intervention components were delivered in both sessions.

Neurological impairment was assessed using the National Institutes of Health Stroke Scale, with a total score range of 0 to 42. Muscle strength was assessed using Manual Muscle Testing on a 0 to 5 scale. Sensory examination assessed sharp and blunt or pain, temperature, and touch. Finger to nose and finger to finger testing were used to assess coordination. Hoffmann testing was performed by flicking the distal phalanx or nail of the middle finger while the hand was relaxed; a positive response was defined by thumb flexion or adduction accompanied by index finger flexion. Balance was assessed using the 14 item Berg Balance Scale, with each item scored from 0 to 4. Functional independence was assessed using the 10 item Barthel Index. The same assessor performed the pre and post intervention assessments. Assessor training information was not available.

Blood pressure before and after session 1 was 130/70 and 138/80 mmHg, respectively. Before and after session 2 it was 125/80 and 130/80 mmHg, respectively. Heart rate was 77 beats/minute, respiratory rate 20 breaths/minute, oxygen saturation 98%, and temperature 36.7°C. Safety was evaluated from general condition and response to treatment. Blood pressure and oxygen saturation were monitored after intervention. Exercise was reduced or modified for increased fatigue, reduced ability to follow instructions, discomfort, or an inappropriate physiological response and stopped if continuation was considered unsafe. Numerical safety thresholds were not available.

Post intervention evaluation was performed on 20 April 2026. No discharge assessment or post discharge follow up was available. The patient's perspective regarding perceived functional change and rehabilitation experience was not documented.

The completed author confirmation form states that specific informed consent for publication of the case report was obtained and that the consent covered clinical data and images, if applicable. The patient completed the prescribed program and demonstrated good participation. Detailed procedures, dosage, and progression of each intervention component are presented in Table 1.

Table 1. Confirmed physiotherapy intervention parameters.

Clinical problem	Intervention	Confirmed procedure and dose
Sensory impairment	Sensory stimulation	Right upper extremity, sitting; light tactile touch, skin pressure, and muscle belly stimulation from proximal to distal; 3 sets of 8 to 10 repetitions; 5 minutes.
Sensory impairment	Sensory re education	Right upper extremity, sitting; tactile and sharp blunt stimuli at shoulder, arm, elbow, and hand; 3 sets of 8 to 10 repetitions; 1 to 2 minutes rest; 5 to 7 minutes.
Muscle weakness	Muscle belly and tone stimulation	Affected extremity, supine; 3 sets of 8 to 10 repetitions; 1 to 2 minutes rest; 5 to 7 minutes.
Muscle weakness	Shoulder approximation	Proprioceptive shoulder stimulation, supine; 3 sets of 8 to 10 repetitions; 1 to 2 minutes rest; 5 to 7 minutes.
Muscle weakness	AAROM and isometric exercise	Right upper extremity according to ability, supine; 3 sets of 8 to 10 repetitions; 1 to 2 minutes rest; 5 to 7 minutes.
Coordination	Finger to finger and finger to nose	Sitting; 3 sets of 8 to 10 repetitions; 1 to 2 minutes rest; 5 to 7 minutes.
Balance	Sitting/standing balance, bridging, sit to stand	Progressive according to ability and tolerance; 2 sets of 8 to 10 repetitions; 1 to 2 minutes rest; assistance progressively reduced.
Motor/functional impairment	PNF	Right upper extremity, sitting; diagonal functional patterns with therapist assistance followed by active movement; 2 sets of 8 to 10 repetitions; 1 to 2 minutes rest; intensity increased according to response.
Functional limitation	Task specific training	Grasping, reaching, object manipulation, simulated eating; sitting; repeated according to tolerance; assistance reduced progressively.
Preparatory modality	Infrared therapy	Right upper extremity shoulder to fingers; 30 cm distance; 10 minutes/session; device type and technical intensity unavailable.

Note. AAROM, active assisted range of motion; PNF, proprioceptive neuromuscular facilitation.

Table 2. Clinical timeline.

Date	Clinical event
13 April 2026	Symptom onset during work related activity
13 April 2026	Initial management at a primary healthcare facility
14 April 2026	Referral to a healthcare facility
15 April 2026	CT diagnostic examination
18 April 2026	Physiotherapy session 1, 30 minutes
20 April 2026	Physiotherapy session 2, 40 minutes and post intervention evaluation

Note. The interval between physiotherapy sessions was 2 days. No discharge or subsequent follow up assessment was available.

Results

The patient was a 50-year-old man with a documented smoking history and no reported previous disease. Before stroke onset, he was independent in mobility and activities of daily living without an assistive device. CT examination on 15 April 2026 showed a subcortical infarction involving the left frontoparietotemporo occipital lobe and left corona radiata. Aphasia and right sided monoparesis were documented.

At baseline, the patient had right upper limb sensory and motor impairment, impaired coordination, balance impairment, and reduced functional independence. He could independently roll and perform sit to stand but could not grasp with the right hand. NIHSS was 7, Hoffmann testing was positive, BBS was 30, and Barthel Index was 50. MMT showed grade 2 shoulder strength, grade 3 elbow strength, and grade 2 wrist strength.

Table 3. Pre intervention and post intervention outcomes.

Outcome	Before	After	Absolute change
Pain sensation	Dysesthesia	Detectable in shoulder and elbow	Qualitative improvement
Temperature	Hypoesthesia	No change	No change
Touch	Hypesthesia	Discrimination remained inconsistent	No clear change
MMT shoulder	2	2	0
MMT elbow	3	4	+1 grade
MMT wrist	2	2	0
NIHSS	7	7	0
Hoffmann	Positive	Positive	No change
Finger to nose	Dysmetria/inaccurate	Dysmetria persisted	No clear change
Finger to finger	Inaccurate	Inaccurate persisted	No clear change
BBS	30	38	+8
Barthel Index	50	60	+10

Note. BBS, Berg Balance Scale; MMT, Manual Muscle Testing; NIHSS, National Institutes of Health Stroke Scale.

After the two sessions, the most evident changes were in pain sensation in the shoulder and elbow regions, elbow muscle strength, balance performance, and functional independence. NIHSS, Hoffmann testing, and coordination did not change. These findings are descriptive and do not establish treatment effectiveness.

Discussion

The present case described short term clinical changes following two sessions of multimodal physiotherapy in a 50-year-old man with right sided monoparesis following nonhemorrhagic stroke. The most notable changes were improved detection of pain sensation in the shoulder and elbow regions, an increase in elbow muscle strength from MMT grade 3 to grade 4, an 8-point increase in BBS, and a 10-point increase in Barthel Index. In contrast, NIHSS remained unchanged at 7, Hoffmann testing remained positive,

and coordination deficits persisted.[6] These findings indicate that the observed changes were not uniform across sensory, motor, neurological, balance, and functional domains.

The improvement in pain sensation was observed in the shoulder and elbow regions, whereas temperature sensation remained impaired and tactile discrimination remained inconsistent. Sensory stimulation and sensory reeducation were included to provide repeated sensory input to the affected upper extremity. From a clinical perspective, repeated sensory input may support the patient's awareness and use of the affected limb during functional activities. However, the present case did not directly assess cortical reorganization, sensory pathway function, or neuroplastic changes. Therefore, the sensory improvement should be interpreted as an observed clinical change rather than evidence of a specific neuroplastic mechanism.[7]

Elbow muscle strength increased from grade 3 to grade 4, while shoulder and wrist strength remained at grade 2. This difference suggests that motor improvement was not uniform across the affected upper extremity. The improvement may have been associated with repeated active assisted movement, isometric exercise, proprioceptive input, and task specific practice included in the rehabilitation program.[8] Nevertheless, the intervention was multimodal and was administered during the early post stroke period. Spontaneous neurological recovery may therefore have contributed to the observed improvement, and the contribution of any individual intervention cannot be determined from this case.[9]

Coordination deficits persisted after the intervention. Finger to nose and finger to finger testing continued to demonstrate inaccurate movement or dysmetria. Coordination requires integration of sensory information, proprioception, visual feedback, and voluntary motor control. Persistent sensory impairment may have continued to influence movement accuracy in the affected upper extremity. The absence of improvement after two sessions should not, however, be interpreted as evidence that the intervention was ineffective because the treatment period was brief and the patient was simultaneously undergoing recovery from the underlying neurological event.[10]

The BBS score increased from 30 to 38 following the intervention period. The rehabilitation program included sitting balance, standing balance, bridging, and sit to stand training, which were directed toward postural control and functional mobility. The observed increase suggests improvement in balance performance during the assessment period.[11] However, because this was a single case, the change should be interpreted descriptively. Whether an 8-point increase represents a clinically meaningful change should be determined only after verification of the appropriate minimal detectable change or minimal clinically important difference for the relevant stroke population and instrument version.

The Barthel Index increased from 50 to 60, indicating an observed improvement in functional independence. Task specific training focused on activities such as grasping, reaching, object manipulation, and simulated eating, while proprioceptive neuromuscular facilitation was also incorporated. These activities were intended to improve the patient's ability to use the affected upper extremity during meaningful functional tasks. Nevertheless, functional independence may also improve as a consequence of spontaneous neurological recovery, general inpatient rehabilitation, increased familiarity with tasks, or changes in other body functions.[12] The observed increase should therefore not be interpreted as evidence of the effectiveness of the specific physiotherapy interventions.

Infrared therapy was also included as part of the treatment program. In this case, the modality was applied to the right upper extremity at a distance of 30 cm for 10 minutes per session. Because the device type and technical intensity parameters were not available, the intervention cannot be fully replicated and no specific conclusion can be made regarding its contribution to the observed clinical changes.[13] Its inclusion should therefore be regarded as one component of the multimodal treatment rather than an independently evaluated intervention.

The clinical reasoning in this case was based on the relationship between body function impairments and activity limitations. Sensory disturbance, muscle weakness, impaired coordination, and balance impairment were associated with difficulty using the right upper extremity, particularly for grasping and selected activities of daily living. This ICF oriented approach helped link the assessment findings with the selection of therapeutic activities. The case illustrates the importance of considering multiple domains of impairment when developing a physiotherapy program for a patient with an atypical post stroke motor presentation.

The findings should also be considered in the context of the patient's early stage of recovery. The interval between stroke onset and the physiotherapy sessions was relatively short, and spontaneous neurological recovery is an important potential contributor during this period. In addition, the patient received several physiotherapy interventions simultaneously, making it impossible to determine which component, if any, was associated with a particular change. The absence of a comparator further limits interpretation. Consequently, the temporal association between physiotherapy and improvement should not be interpreted as a causal relationship.

Several limitations should be acknowledged. This was a single case involving only two physiotherapy sessions, with no comparator and no post discharge follow up. The etiological classification and specific vascular territory were not available, assessor training information was not documented, and the technical parameters of infrared therapy were incomplete. The patient's perspective was also not documented. These limitations restrict causal inference, assessment of sustained clinical benefit, and generalizability to other patients with stroke related monoparesis.[14]

Despite these limitations, this case provides a clinical description of multimodal physiotherapy management for a relatively uncommon monoparesis presentation following nonhemorrhagic stroke. The case emphasizes the importance of integrating neurological, sensory, motor, coordination, balance, and functional findings when establishing physiotherapy clinical reasoning. Future case reports should provide precise intervention parameters, standardized outcome assessment procedures, complete diagnostic information, explicit safety monitoring, and longer follow up. Comparative prospective studies are required to determine whether specific physiotherapy interventions provide clinically meaningful benefits for patients presenting with monoparesis after stroke.[15]

Conclusion

This case report describes short term changes observed after two sessions of multimodal physiotherapy in a patient with right sided monoparesis following nonhemorrhagic stroke. Improvements were observed in pain sensation in the shoulder and elbow regions, elbow muscle strength, balance performance, and functional independence, whereas NIHSS, Hoffmann testing, coordination, temperature sensation, and tactile discrimination showed no clear improvement. These findings represent observations during an early rehabilitation period and should not be interpreted as evidence of treatment effectiveness. The single case design, short intervention period, multimodal treatment, absence of a comparator, and lack of follow up prevent attribution of the observed changes to physiotherapy or any individual intervention component.

Patient Perspective

The patient's perspective regarding the perceived changes in symptoms, functional ability, and experience during physiotherapy rehabilitation was not documented in the available case information. Therefore, a patient perspective could not be reported in this case report.

Author Contribution

Nur Ilmi Dilwa Putri: Conceptualization; Methodology; Formal analysis; Investigation; Data curation; Writing, original draft; Visualization; Project administration.
Meutiah Mutmainnah Abdullah: Conceptualization; Methodology; Validation; Writing, review and editing; Supervision.
Sri Wahyuni. N: Validation; Investigation; Writing, review and editing; Supervision.

Acknowledgments

The authors have no additional acknowledgments to declare.

Conflict of Interest Statement

The authors declare no conflict of interest.

Funding Sources

This study received no external funding.

Ethics Statement

Ethical approval, committee information, approval number, and formal exemption or waiver information were not available in the author confirmation data.

References

1. Feigin VL, Owolabi MO, et al. Pragmatic solutions to reduce the global burden of stroke: a World Stroke Organization-Lancet Neurology Commission. Lancet Neurol. 2023;22(12):1160-1206.
2. Morkavuk G, Işık K, Odabaşı Z. Ischemic stroke cases presenting with hand weakness mimicking peripheral neuropathy. Turk J Phys Med Rehabil. 2022;68(4):543-546.
3. Winstein CJ, Stein J, Arena R, Bates B, Cherney LR, Cramer SC, et al. Guidelines for adult stroke rehabilitation and recovery: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. Stroke. 2016;47(6):e98-e169.
4. Tong Y, Ding Y, Han Z, Duan H, Geng X. Optimal rehabilitation strategies for early postacute stroke recovery: an ongoing inquiry. Brain Circ. 2023;9(4):201-204.
5. Morkavuk G, Işık K, Odabaşı Z. Ischemic stroke cases presenting with hand weakness mimicking peripheral neuropathy. Turk J Phys Med Rehabil. 2022;68(4):543-546.
6. Kudlac M, Sabol J, Kaiser K, Kane C, Phillips RS. Reliability and validity of the Berg Balance Scale in the stroke population: a systematic review. Phys Occup Ther Geriatr. 2019;37(3):196-221.
7. Cortese AM, Cacciante L, Schuler AL, Turolla A, Pellegrino G. Cortical thickness of brain areas beyond stroke lesions and sensory-motor recovery: a systematic review. Front Neurosci. 2021;15:764671.
8. Valkenborghs SR, Callister R, Visser MM, Nilsson M, van Vliet P. Interventions combined with task-specific training to improve upper limb motor recovery following stroke: a systematic review with meta-analyses. Phys Ther Rev. 2019;24(3-4):100-117.
9. Ghrouz A, Guillen-Sola A, Morgado-Perez A, Muñoz-Redondo E, Ramírez-Fuentes C, Curbelo Peña Y, et al. The effect of a motor relearning on balance and postural control in patients after stroke: an open-label randomized controlled trial. Eur Stroke J. 2024;9(2):303-311.
10. Doumen S, Sorba L, Feys P, Tedesco Triccas L. Efficacy and dose of rehabilitation approaches for severe upper limb impairments and disability during early acute and subacute stroke: a systematic review. Phys Ther. 2023;103(4):pzad002.
11. Rosadi R, Putro K, Nurfani MY, Wardojo SSI. Penatalaksanaan kasus post ischemic stroke sinistra dengan komorbid diabetes mellitus tipe II di RSUD Dungus. J Integr Kesehat Sains. 2023;5(1):1-6.
12. Yang CM, Wang YC, Lee CH, Chen MH, Hsieh CL. A comparison of test-retest reliability and random measurement error of the Barthel Index and modified Barthel Index in patients with chronic stroke. Disabil Rehabil. 2022;44(10):2099-2103.
13. Winstein CJ, Stein J, Arena R, Bates B, Cherney LR, Cramer SC, et al. Guidelines for adult stroke rehabilitation and recovery: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. Stroke. 2016;47(6):e98-e169.
14. Gagnier JJ, Kienle G, Altman DG, Moher D, Sox H, Riley D. The CARE guidelines: consensus-based clinical case reporting guideline development. J Med Case Rep. 2013;7:223.
15. Zhang S, Zhang H, Miao Z, Han J. Comparative effects of six rehabilitation therapies on lower limb function and gait function in stroke patients: a network meta-analysis of 33 RCTs. Front Neurol. 2026;17:1759251.