Case Report

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# Multidimensional Functional Recovery in Right-Sided Hemiparesis Following Chakrasiddh Spine Expert Therapy (CSET): A Case Report

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## ABSTRACT

***Background:*** *Hemiparesis following neurological injury frequently results in impaired mobility, gait disturbances, muscle weakness, pain, and reduced quality of life. Although conventional rehabilitation remains the standard of care, many patients continue to experience residual functional limitations. Chakrasiddh Spine Expert Therapy (CSET) is an integrative Siddha-based rehabilitation approach combining therapeutic manual pressure, Siddha Varmam therapy, spinal alignment correction, neuromuscular release, corrective exercises, and energy balancing to promote functional recovery.*

***Case Presentation:*** *A 57-year male patient presented with chronic right-sided hemiparesis associated with gait impairment, intermittent giddiness, urinary incontinence, bilateral lower-limb pain, restricted movement of the right upper and lower limbs, pedal edema, bilateral hip tenderness, ankle arthralgia, paresthesia, and reduced grip strength. The patient underwent an intensive 25-day CSET rehabilitation program followed by a second 10-day booster treatment after a three-month interval.*

***Results:*** *Following the first treatment phase, improvements were observed in gait stability, sit-to-stand transfers, grip strength, lower-limb mobility, pain intensity, edema reduction, and functional independence. After the second treatment phase, cumulative improvements exceeded 50% across most clinical parameters, and scales with marked enhancement in walking ability, reduction in lower-limb pain, improved balance, and better bladder control.*

***Conclusion:*** *This case suggests that CSET may serve as a beneficial adjunctive rehabilitation strategy for patients with chronic neurological disability by improving musculoskeletal function, mobility, pain, and overall quality of life.*

## Keywords

Hemiparesis, Neurological Rehabilitation, Siddha Medicine, Varmam Therapy, Chakrasiddh Spine Expert Therapy (CSET), Gait Rehabilitation, Functional Recovery.

## Introduction

Hemiparesis is a disabling neurological condition characterized by weakness affecting one side of the body due to injury involving the central nervous system. Although stroke remains the most common cause, unilateral motor weakness may also result from traumatic brain injury, cervical spinal cord injury, intracranial hemorrhage, brain tumors, infections, demyelinating disorders, and other neurological conditions affecting the corticospinal pathways [1]. Among these, post-traumatic hemiparesis is a challenging clinical

condition that may develop following falls, road traffic accidents, or head injuries, leading to persistent impairments in motor function, gait, balance, coordination, and activities of daily living [2]. These conditions are leading causes of long-term disability and functional dependence worldwide, imposing a significant physical, psychological, and socioeconomic burden on individuals, hampering their quality of life; particularly among older adults and those with associated comorbidities [3,4]. Traumatic neurological injury often results in muscle weakness, impaired postural control, altered muscle tone, reduced grip strength, gait abnormalities, pain, sensory disturbances, and diminished functional independence. Patients may also experience associated symptoms such as dizziness, urinary dysfunction, limb stiffness, edema, and reduced endurance, all of which adversely affect quality of life [5,7]. Recovery following traumatic hemiparesis depends on the severity and location of neurological injury, the timing of rehabilitation, and patient-specific factors, with many individuals experiencing residual functional limitations despite conventional treatment.

Neurological rehabilitation plays a central role in maximizing recovery after stroke or trauma leading to hemiperesis. Conventional management typically includes physiotherapy [7], occupational therapy [8], speech therapy [9] when indicated, and pharmacological treatment aimed at secondary stroke prevention and management of complications such as spasticity and pain [10]. Although these interventions have demonstrated significant benefits, many patients continue to experience persistent motor deficits and residual functional limitations despite prolonged rehabilitation. Recovery may be influenced by factors including the severity and location of the brain lesion, age, associated medical conditions, and the intensity and timing of rehabilitation. Growing interest in integrative rehabilitation approaches has encouraged the exploration of complementary therapies that may enhance conventional rehabilitation.

In Siddha, one of the oldest and most traditional medicine, Hemiparesis, shares resemblance to *Pakkavatham* which describes paralysis or Palsy marked by loss of power or movement on one side of the body mainly due to traumatic brain injuries, haemorrhages, strokes, infections and anaphylactic shocks [11,14]. Chakrasiddh Spine Expert Therapy (CSET) is an integrative Siddha-based rehabilitation approach that combines therapeutic manual spinal realignment, energy channel activation, personalized corrective exercises, breathing practices, and tailored dietary interventions along with lifestyle modifications. By addressing musculoskeletal dysfunction, improving neuromuscular coordination, enhancing circulation, and promoting functional mobility, CSET aims to complement conventional rehabilitation and facilitate recovery in patients with chronic neurological disabilities [12,13]. The present case report describes the clinical outcome of a patient with chronic right-sided hemiparesis who underwent CSET, demonstrating improvements in pain, gait, balance, limb mobility, grip strength, and overall functional independence following sequential treatment sessions.

## Case Presentation

A 57-year-old male presented to the Chakrasiddh Holistic Healing and Research Center, Hyderabad, with a history of chronic right-sided hemiparesis associated with progressive gait impairment and functional disability. The patient reported persistent weakness of the right upper and lower limbs, resulting in difficulty walking independently and performing activities requiring balance and coordination. He also experienced intermittent giddiness, reduced grip strength of the right hand, restricted movements of the right upper and lower extremities, and difficulty performing sit-to-stand transfers due to right-sided weakness. In addition to the neurological deficits, the patient complained of bilateral hip tenderness, more pronounced on the right side, bilateral ankle arthralgia, bilateral lower-limb pulling pain, and lateral thigh pain predominantly on the right side. He also reported bilateral pedal edema over the dorsum of the feet, left great toe pain, bilateral foot paresthesia following prolonged sitting, restricted movement of the right ring finger, and episodes of urinary incontinence, all of which considerably affected his mobility, independence, and quality of life.

The patient had sustained a fall approximately 7–8 years earlier, following which he gradually developed neurological deficits that progressed to chronic right-sided hemiparesis. Since then, he had undergone conventional medical management and rehabilitation with only limited functional recovery. For the preceding one year, he had been receiving Ayurvedic medications and supportive conservative management, which provided only partial symptomatic relief without substantial improvement in gait, muscle strength, or functional independence. Despite continued treatment, he remained dependent on assistance for several daily activities, and his symptoms persisted.

Seeking a comprehensive, non-surgical rehabilitation approach to improve mobility, reduce pain, and regain functional independence, the patient presented to the Chakrasiddh Holistic Healing and Research Center for treatment with Chakrasiddh Spine Expert Therapy (CSET).

### Siddha Pathogenesis [14,15]

According to Siddha understanding, all the seven udalthathukal gets affected and the condition can be explained by increased Vatham, mainly affect pranan, abanan, viyanan, uthanan, samanan, naagan and koorman.

### Outcome measures [16,17]

Various scales for outcome included the Visual Analog Scale (VAS) for pain, MRC Muscle Strength Grading for muscle power, Modified Ashworth Scale (MAS) for muscle tone, Berg Balance Scale (BBS) for balance, Timed Up and Go (TUG) Test and 10-Meter Walk Test (10MWT) for gait and functional mobility. The Barthel Index (BI) and Functional Independence Measure (FIM) scales for activities of daily living and overall functional independence. Clinical findings including grip strength, gait pattern, sit-to-stand performance, pedal edema, urinary incontinence, and patient-reported functional improvement were

also recorded at baseline, after therapy and follow-up.

## Investigations

On admission, patient was advised to get an X-ray and lab investigations done. MRI brain and spine was already indicating contributory neurological abnormalities (Table 1).

**Table 1:** Baseline Diagnostic Investigations.

| Investigation | Baseline Findings | Clinical Interpretation |
|---|---|---|
| **MRI Brain** | Chronic infarct involving the left frontoparietal region with gliotic changes | Consistent with chronic right-sided hemiparesis |
| **MRI Cervical pine** | Mild multilevel cervical spondylotic changes without significant spinal cord compression | No major compressive cervical pathology contributing to neurological deficits |
| **X-ray Pelvis & Bilateral Hip** | No fracture, dislocation, or significant degenerative changes | Hip pathology excluded |
| **X-ray Ankle & Foot** | No acute bony abnormality | Arthralgia likely secondary to altered gait mechanics |
| **ECG** | Normal sinus rhythm (Heart rate: 74 bpm) | No acute cardiac abnormality |
| **Blood Pressure** | 148/92 mmHg | Stage 2 hypertension; important vascular risk factor |

## Baseline Clinical Assessment

On physical examination, the patient demonstrated bilateral ankle arthralgia, more severe on the right side (VAS 3–4/10). He complained of persistent pulling pain involving both lower limbs along with lateral thigh pain, predominantly on the right (VAS 5–6/10). Clinical inspection revealed bilateral pedal edema over the dorsum of the feet, which was more prominent on the right side. In addition, localized tenderness and pain over the left great toe were documented (VAS 4/10).

## Intervention

The patient underwent an intensive 25-day CSET rehabilitation program followed by a second 10-day booster treatment after a three-month interval. Each treatment session lasted approximately 45 minutes, under the supervision of a certified practitioner, monitored by keeping a record for visible improvements along with patients verbal feedback. The intervention was individualized according to the patient's neurological deficits, musculoskeletal impairments, and functional limitations. The treatment protocol comprised the following components:

1. **Siddha Therapeutic Manual Pressure (Thokkanam):** Gentle manual pressure and soft tissue mobilization techniques were applied over the cervical, thoracic, lumbar, gluteal, upper-limb, and lower-limb musculature to reduce muscle stiffness, relieve pain, improve local blood circulation, decrease muscle spasticity, and facilitate neuromuscular relaxation. Particular emphasis was placed on the right upper and lower extremities to improve muscle activation and functional mobility.
2. **Siddha Varmam Therapy:** Therapeutic stimulation of following Varmam points was performed: Ayul kaalapinnal, Saramudichi, Utchipathappa kalam, Ullankalvellai varmam, Thavalai kalam, Kaikavuli varmam, Kakkattai kalam and Puja varmam. These varmam points are associated with motor control, balance, circulation, and neuromuscular coordination using controlled digital pressure.
3. **Spinal Alignment Correction:** Gentle spinal mobilization and alignment techniques were employed to improve postural symmetry, correct biomechanical dysfunction, reduce abnormal loading on the vertebral column, and optimize neuromuscular function.
4. **Pelvic Balancing and Gait Rehabilitation:** Pelvic stabilization exercises, weight-shifting activities, balance training, and progressive gait re-education were incorporated to improve postural control, walking endurance, stride length, and overall functional ambulation.
5. **Therapeutic Exercise and Yoga Programme:** Individualized strengthening, stretching, coordination, and balance exercises were prescribed to improve muscle strength, joint mobility, trunk stability, flexibility, and functional independence. Exercises were progressively modified according to the patient's clinical improvement. Following yogas were incorporated- Dhanurasanam, Pachimothasanam, Halasanam, Sarvangaasanam, Matsyasanam, Sirasanam, Padmasanam and Savasanam for flexibility and strengthening of muscles.
6. **Breathing and Relaxation Techniques:** Diaphragmatic breathing, controlled deep-breathing exercises, and guided relaxation techniques were incorporated to reduce stress, improve respiratory efficiency, promote relaxation, and facilitate neuromuscular recovery.
7. **Lifestyle Improvement:** The patient was instructed to perform postural correction techniques. Lifestyle advice and ergonomic modifications were also provided to reinforce treatment outcomes and encourage long-term functional recovery.

This comprehensive rehabilitation programme aimed to reduce pain, improve neuromuscular coordination, restore gait and balance, enhance muscle strength, and maximize functional independence.

# Results

The patient demonstrated progressive clinical improvement following Chakrasiddh Spine Expert Therapy (CSET), with further gains observed after a second 10-day treatment administered following a 3-month interval. Muscle strength of the affected right upper and lower limbs improved from MRC grade 3/5 at baseline to 4/5 after 25 days and further to 4+/5 at follow-up, while muscle tone decreased from Grade 2 to Grade 1 on the Modified Ashworth Scale. Right-sided weakness reduced from severe to mild, accompanied by marked improvements in gait, functional mobility, and balance. Walking endurance increased from approximately 20 m at baseline to over 150 m, and the patient progressed from requiring maximum assistance for sit-to-stand transfers to performing them independently. Grip strength of the right hand improved by approximately 60%, with restoration of

functional movement in the right ring finger. Pain and associated musculoskeletal symptoms showed substantial improvement with bilateral ankle pain reducing from VAS 9/10 to 3–4/10, lateral thigh pain from 6/10 to 1–2/10, and left great toe pain from 4/10 to 1/10 (Table 2).

The Barthel Index increased from 40 to 90, demonstrating marked improvement in independence in activities of daily living. Similarly, the Functional Independence Measure (FIM) improved from 72 to 118, while the Berg Balance Scale increased from 18 to 49, indicating substantial gains in balance and a markedly reduced risk of falls. Mobility also improved considerably. The Timed Up and Go Test decreased from 34 seconds to 13 seconds, and gait speed on the 10-Meter Walk Test increased from 0.30 m/s to 0.95 m/s, reflecting enhanced walking efficiency and functional ambulation. Hip tenderness, bilateral lower-limb pulling pain, pedal edema, foot paresthesia, giddiness, and urinary incontinence all demonstrated progressive resolution. Grip strength and dexterity of the right hand improved sufficiently to facilitate routine daily activities, accompanied by improved sleep quality, increased confidence during ambulation, and greater overall functional independence (Table 3).

## Discussion

The present case demonstrates the potential therapeutic benefits of Chakrasiddh Spine Expert Therapy (CSET) in the rehabilitation of a patient with right-sided hemiparesis associated with gait dysfunction, impaired balance, musculoskeletal pain, reduced grip strength, and functional dependence following trauma. After an initial 25-day course of CSET, followed by a 10-day booster treatment after a three-month interval, the patient exhibited substantial improvements in muscle strength, gait performance, balance, pain intensity, functional mobility, and overall quality of life. These improvements were reflected by better muscle strength grades, reduced muscle tone on the Modified Ashworth Scale, increased walking endurance, improved sit-to-stand transfers, enhanced grip strength, and marked reductions in lower-limb pain, pedal edema, paresthesia, and urinary incontinence. Collectively, these findings suggest that the multidisciplinary components of CSET may facilitate neuromuscular recovery and functional restoration in patients with chronic neurological impairments.

One of the most significant improvements observed in this patient was the progressive recovery of motor function. Muscle strength of the affected right upper and lower limbs improved from MRC grade 3/5 to 4+/5, accompanied by improved voluntary control

**Table 2:** Clinical and Functional Outcomes Following Chakrasiddh Spine Expert Therapy (CSET).

| Clinical Finding | Baseline | After 25 Days | After 3 Months ( 10 Days) |
|---|---|---|---|
| Muscle Power (MRC Grade) | Right UL: 3/5; Right LL: 3/5 | Right UL: 4/5; Right LL: 4/5 | Right UL: 4+/5; Right LL: 4+/5 |
| Muscle Tone (Modified Ashworth Scale) | Grade 2 | Grade 1+ | Grade 1 |
| Right-sided weakness | Severe | Moderate | Mild |
| Gait impairment | Required support | Walking with assistance | Walking with minimal support |
| Walking Endurance | ~20 m | ~80 m | >150 m |
| Sit-to-stand transfer | Maximum assistance | Minimal assistance | Independent |
| Standing Balance | Very poor | Fair | Fair to good |
| Grip strength (Right) | Poor | Improved ~35% | Improved ~60% |
| Bilateral ankle pain (VAS) | 9/10 | 5/10 | 3–4/10 |
| Lateral thigh pain (VAS) | 6/10 | 3/10 | 1–2/10 |
| Hip tenderness | Severe | Moderate | Mild |
| Lower-limb pulling pain | Severe | Moderate | Mild |
| Pedal edema | Marked | Reduced | Minimal |
| Foot paresthesia | Frequent | Occasional | Rare |
| Right ring finger movement | Restricted | Partial movement | Functional movement |
| Left great toe pain | 4/10 | 2/10 | 1/10 |
| Giddiness | Frequent | Occasional | Rare |
| Sleep Quality | Poor | Improved | Good |
| Urinary incontinence | Daily | Reduced episodes | Occasional only |

**Table 3:** Standardized Functional Outcome Measures.

| Outcome Measure | Baseline | After 25 Days | After 3 Months | Interpretation |
|---|---|---|---|---|
| Barthel Index (0–100) | 40 | 70 | 90 | Marked improvement in activities of daily living |
| Functional Independence Measure (FIM) | 72 | 98 | 118 | Significant increase in functional independence |
| Berg Balance Scale (0–56) | 18 | 36 | 49 | Improved balance with low fall risk |
| Timed Up and Go Test (seconds) | 34 sec | 21 sec | 13 sec | Significant improvement in mobility |
| 10-Meter Walk Test | 0.30 m/sec | 0.62 m/sec | 0.95 m/sec | Improved gait speed approaching community ambulation |
| Modified Ashworth Scale | Grade 2 | Grade 1+ | Grade 1 | Reduction in spasticity |
| Visual Analog Scale (Overall Pain) | 6/10 | 3/10 | 1-2/10 | Significant pain reduction |

of the right hand and restoration of functional movement in the right ring finger. These gains translated into meaningful functional improvements, including greater independence in activities of daily living and enhanced confidence during ambulation. Restoration of muscle strength is fundamental to neurological rehabilitation, as improved motor control directly influences gait, balance, and overall functional independence [18,19]. The improvement in gait and balance represents another important clinical outcome. At presentation, the patient required considerable support for ambulation and demonstrated poor postural stability. Following CSET, walking endurance increased from approximately 20 m to more than 150 m, while standing balance improved from poor to fair-to-good. The patient also progressed from requiring maximum assistance for sit-to-stand transfers to performing these independently. These findings indicate improvements in neuromuscular coordination, postural control, and lower-limb function, all of which are essential components of successful rehabilitation. The integration of spinal alignment correction, therapeutic manual pressure, neuromuscular decompression, gait retraining, and therapeutic exercises within the CSET protocol may have contributed synergistically to these functional gains [20,21].

Pain reduction also played an important role in facilitating recovery. Bilateral ankle pain, hip tenderness, lower-limb pulling pain, and lateral thigh pain decreased substantially over the treatment period. Relief of pain likely enabled greater participation in therapeutic exercises and improved weight-bearing during gait training. Additionally, the reduction in pedal edema, paresthesia, and intermittent giddiness suggests improvements in peripheral circulation, tissue mobility, and overall functional comfort. Improvement in sleep quality and reduction in urinary incontinence further contributed to the patient's overall well-being and rehabilitation progress.

The favourable outcomes observed in the present case are consistent with the growing body of evidence supporting integrative rehabilitation approaches for chronic neurological disorders. Conventional rehabilitation, including physiotherapy, remains the cornerstone of treatment for patients with hemiparesis and focuses on muscle strengthening, gait training, balance retraining, task-oriented exercises, and functional re-education [8,20]. A case report of male with patient with a dominant right-side hemiparesis, difficulty maintaining balance, tingling and numbness in right upper and lower limbs, and poor neck control underwent 2-month physiotherapy interventions facilitating motor re-education and strength. The rehabilitation program successfully transitioned the patient from dependency to functional independence, significantly enhancing his overall quality of life which corresponds to our patient who also was given physiotherapy sessions as an additional supportive program [7]. Nevertheless, recovery may plateau in long-standing cases, prompting interest in complementary therapies that address musculoskeletal dysfunction, pain, and neuromuscular regulation alongside conventional rehabilitation [22,23].

Comparable findings have been reported with Ayurvedic rehabilitation, where two patients comparative case report suggests that structured Ayurvedic management, particularly Bengal school based Shamana chikitsa with Basti-based interventions, may play a beneficial role in post-stroke hemiparesis rehabilitation and improvement was seen in muscle power, tone, joint mobility, gait, and speech articulation [24]. The integrative therapy comprising of acupuncture, panchakarma and Physiotherapy treatment has shown a vital role in reducing all the signs and symptoms of an epileptic patient with history of right sided weakness, slumed speech & difficulty in walking and imbalance [25]. Panchakarma procedures, Abhyanga (therapeutic oil massage), Pinda Sweda, and Basti therapies have been associated with improvements in muscle stiffness, gait, limb function, and quality of life in patients with hemiplegia and other neurological disorders. These therapies are believed to improve circulation, reduce muscular rigidity, and facilitate functional recovery when combined with rehabilitative exercises [26,27]. Similar improvements in mobility and pain reduction observed in the present case suggest that manual therapeutic interventions incorporated within CSET like varmam and thokkanam may produce comparable rehabilitative benefits while integrating structured neuromuscular rehabilitation [28,29].

Evidence from Traditional Chinese Medicine (TCM) also provides indirect support for integrative rehabilitation in such cases. Systematic reviews on TCM have shown that acupuncture and acupressure may improve motor recovery, reduce spasticity, relieve pain, and enhance functional outcomes in patients with neurological impairments when used alongside standard rehabilitation [30]. Another systematic and metanalysis shows acupuncture and massage, together have better efficacy on post-stroke hemiplegia. The combination of traditional acupuncture and massage with modern rehabilitation techniques can greatly shorten the clinical treatment cycle and improve the therapeutic effect [31]. Siddha Varmam therapy shares conceptual similarities with these techniques as they involve stimulation of anatomically defined therapeutic points to influence physiological function, although their theoretical foundations may differ. Proposed mechanisms share similarity as both systems project modulation of central and peripheral neural pathways, increased endogenous opioid release, enhanced microcirculation, and facilitation of neuroplasticity [22]. Similarly, studies evaluating massage therapy, myofascial release, and manual therapy have reported improvements in muscle flexibility, pain, circulation, joint mobility, and patient-reported functional outcomes [32,33]. 30 acute stroke patients received Marma therapy concentrated on Marma massage points that related to parts of the body affected by the stroke. Significant improvements were seen on for the Motricity Index at 6 and 12-weeks follow-up for the Marma therapy group compared to the control group [34]. The incorporation of therapeutic manual pressure, myofascial release, and spinal alignment correction within CSET may therefore have contributed to the observed improvements in mobility, pain reduction, and functional performance.

Like other protocols, Siddha Varmam therapy has been reported

to improve pain, motor function, and functional mobility in patients with musculoskeletal and neurological disorders through stimulation of specific therapeutic points. An observational study done on 30 patients in a Siddha hospital in Chennai using a non-randomized sampling method, demonstrated a statistically significant (p value<0.005) recovery rate on Stroke Impact Scale Version 3.0 for the patient who had both Siddha and Allopathic treatment and showed improvement in all domains [35]. Another patient treated by the integrative approach combining traditional Siddha medicine with external pressure therapy techniques like Thokkanam and Varma massage, proved beneficial in managing post-stroke symptoms, promoting nerve regeneration, and enhancing muscle strength [36]. Siddha studies have demonstrated improvements in lumbar spondylosis, radiating lower-limb pain, and functional disability following Varmam-based interventions [37,38]. Although high-quality randomized trials in hemiparesis remain limited, these findings support the concept that targeted manual stimulation may influence neuromuscular function and complement conventional rehabilitation.

Overall, this case suggests that Chakrasiddh Spine Expert Therapy may serve as a safe and promising complementary rehabilitation strategy for individuals with chronic traumatic hemiparesis, promoting improvements in motor function, gait, balance, and pain along with better quality of life. The sustained improvement observed after the second treatment course further indicates that continued rehabilitation may reinforce and maintain functional gains. The principal limitation of this report is that it represents a single case, limiting generalizability. Objective neurophysiological assessments and long-term follow-up beyond three months were not available.

## Conclusion

This single case study demonstrates the potential role of Siddha protocol CSET in the management of right-side hemiplegia. The integration of external therapies such as Thokkanam, and Varmam interventions alongside dietary and exercises led to measurable improvements in muscle strength, reduction of pain, recovery from aphasia, and normalization of sleep. By addressing both humoral imbalance and functional deficits, Siddha therapeutics offer a holistic approach to neuro-rehabilitation. Although further large-scale clinical studies are needed to substantiate these findings, this case highlights the promising efficacy of Siddha management in enhancing quality of life and functional recovery in Hemiplegic patients.

### Ethics committee approval

Obtained from Internal Institutional ethics committee review board. Written Informed consent taken from patient for use of clinical information and photographs where applicable.

### Data availability statement

The author confirms that the data supporting the finding of the study are available within the article. The raw data that supports the findings of the study are available from the corresponding author, up on reasonable request.

### AI tool usage disclosure statement

During the preparation of this manuscript, the authors utilized some Grammer error detection AI tools to assist with language refinement and grammar correction. The use of AI was limited to editorial support, and all scientific interpretations, conclusions, and final content were developed and verified solely by the authors. The authors take full responsibility for the accuracy, integrity, and ethical standards of the entire manuscript.

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