

Clinical Efficacy of Ayurvedic Management in a Genetically Confirmed Case of Friedreich's Ataxia – A Single Case Report

Dr. V. Kranthi Kumari¹, Dr. K. Laxmikantham², Dr. P. Srikanth Babu³

¹Post Graduate Scholar, ²Professor & Guide, ³PG Professor & HOD, Director, Department of AYUSH, Telangana, India.

Post Graduate Department of Kaya Chikitsa
Dr BRKR Govt. Ayurvedic Medical College & Hospital, Hyderabad, Telangana, India.

Abstract:

Friedreich's Ataxia (FA) is a rare autosomal recessive neurodegenerative disorder characterized by progressive gait impairment, limb incoordination, dysarthria and multisystem involvement. From an Ayurvedic perspective, FA may be correlated with hereditary *Vata*-dominant neurological disorders described under conditions such as *Sarvanga Vata* or *Majjavruta Vata*, involving derangement of *Vata Dosha* affecting *Majja Dhatu*.

Case Presentation and Intervention: A 23-year-old male with genotype-confirmed Friedreich's Ataxia by reputed hospitals, presented with progressive gait instability since 2016, along with limb incoordination, slurred speech and impaired fine motor control. He underwent integrative Ayurvedic management comprising *Shamana Chikitsa* for 55 days and *Panchakarma Chikitsa* for 45 days, including *Abhyanga*, *Swedana*, *Vasti*, *Shastikashali Pinda Sweda* and *Shirodhara*, aimed at pacifying aggravated *Vata* and supporting neuromuscular function. **Results:** Post-treatment, SARA scores improved from 19 to 10, and mFARS scores reduced from 43.5 to 26.5, indicating improvements in gait, balance, coordination and postural stability; while the patient reported improved walking confidence and reduced dependence on external support. **Conclusion:** This case highlights the potential supportive role of Ayurvedic interventions in improving functional outcomes and quality of life in Friedreich's ataxia as an adjunctive approach.

Keywords: Friedreich's Ataxia, *Sarvanga Vata*, *Shamana Chikitsa*, *Mustadi Yapana Vasti*, SARA, mFARS.

INTRODUCTION:

Friedreich's Ataxia (FA), first described by Nikolaus Friedreich in 1863, is the most prevalent inherited ataxia and follows an autosomal recessive pattern of inheritance. It is characterized by progressive neurodegeneration with prominent multisystem involvement. Disease onset typically occurs from early childhood to early adulthood, with a mean onset between 8 and 15 years. Initial manifestations include gait instability due to lower limb ataxia, followed by upper limb incoordination, dysarthria and dysmetria. Peripheral motor and sensory neuropathy are common and is frequently associated with pyramidal signs such as spasticity. Hypertrophic cardiomyopathy affects approximately two-thirds of patients and may precede neurological symptoms in some cases. Metabolic disturbances, including glucose intolerance and diabetes mellitus, are observed in a subset of individuals. Approximately 75% of patients exhibit the classical phenotype, while the remaining 25% present with atypical forms despite biallelic full-penetrance GAA expansions. Friedreich's Ataxia is caused by expansion of a GAA trinucleotide repeat in the *FXN* gene on chromosome 9q13, resulting in frataxin deficiency and mitochondrial dysfunction. The global prevalence is estimated at approximately 1 in 40,000 individuals

From an Ayurvedic perspective, Friedreich's ataxia can be conceptualized as an *Adibalapravritta Vyadhi* originating from *Beeja dosha*, wherein defects in *Shukra* and *Artava* (*Shukra–Artava dushiti*) result in *Beeja bhaga avayava vikriti*, comparable to gene-level mutations such as the *FXN* gene defect. The disorder may also be classified as a *Garbhaja vikara*, with pathological processes initiating during intrauterine development

(*Garbha samskara doshajanya*). Progressive neuromuscular degeneration reflects *Vataja vyadhi* due to *Majja kshaya*, leading to lifelong nervous system dysfunction along with *Stambha* and *Gati Vaishmya*.

The Objective Parameters considered during the study are by using standardized neurological rating scales—the Scale for the Assessment and Rating of Ataxia (SARA) and the Modified Friedreich's Ataxia Rating Scale (mFARS).

CASE STUDY:

Materials & Methods:

Place of Study: Out-Patient & In-Patient Departments of Kaya Chikitsa, Dr BRKR Govt. Ayurvedic Medical College & Hospital, Erragadda, Hyderabad, Telangana, India.

Chief Complaints:

23 years aged Male patient, AXY visited Dr BRKR Govt. Ayurvedic Medical College & Hospital, Erragadda, Hyderabad with OPD/IPD No. 2292/232 and came to Kaya Chikitsa OPD for consultation from Dr. P. Srikanth Babu, PG Professor & HOD. Patient complained of inability to walk without support since 2016 viz., from 09 years along with imbalance while walking and slurring in speech since 2021. Associated with changes in handwriting since 2021.

STUDY TYPE: Interventional Open labelled Study

HISTORY OF PRESENT ILLNESS:

A *Youvana Avasta Rogi* from a *Sadharana Desha* having *Madhyama Kosta*, *Vata Pittaja* dominant *Shareera Prakruti* and *Rajo Tamas* dominant *Manasika Prakruti* with *Madhyama Deha Pramana* presented to Dr BRKR Govt. Ayurvedic Medical College & Hospital, Erragadda, Hyderabad, with inability to walk without support (*Gamana Kruchrata*) since 2016 viz., from 09 years along with imbalance while walking and slurring in speech since 2021. He was unable to walk or stand for long time (*Gamana asaktata*). The patient was apparently asymptomatic till 2016. Gradually, he noticed imbalance while walking and was unable to talk properly with slurry speech progressing along with weakening of the muscle strength in both the lower limbs, followed by change in handwriting. Patient underwent conservative treatment at Yashoda Hospitals, Hyderabad and found no remarkable improvement. Consequently, he was genotypically diagnosed with Friedreich's Ataxia and was managed symptomatically, with only mild relief. Later, he consulted *Vaidya*, Dr. P. Srikanth Babu, PG Professor & HOD at Dr BRKR Govt. Ayurvedic Medical College & Hospital, Erragadda, Hyderabad for Ayurvedic management.

HISTORY OF PAST ILLNESS:

No past H/o. HTN/DM/CAD/CVA/Trauma/Fracture. No other co-morbidities. No Cardiac and Thyroid disorders. The patient was diagnosed COVID-19 Positive in May 2021. No past Surgical history.

TREATMENT HISTORY:

The patient is under allopathic medication with Tab. Resicar-Q (Levocarnitine and Ubiquinone) and Tab. Norwayz (Idebenone) for the present condition.

- Levocarnitine: Helps prevent ailments related to the kidney, liver and heart and contributes to the metabolic function.
- Ubiquinone: Known for its antioxidant properties, which may help reduce the impact of ageing.
- Idebenone: Acts by protecting wide variety of cells from oxidative damage thereby increasing production of energy by cells.

FAMILY HISTORY:

Patient's younger brother is also diagnosed with Friedreich Ataxia, as their parents are recessive carriers due to consanguineous marriage (*Tulya Gotriya*).

PERSONAL HISTORY:

Table No. 1.1 showing the personal history of the patient

Name: <i>AXY</i>	Marital Status: Unmarried
Age/Gender: 23 years/Male	Occupation: Student
Diet: Mixed	Habits/Addictions: Tea/Coffee – once a day
Micturition: Normal	Bowels: Regular

A) VIHARA

Table No. No. 1.2 showing the personal history – Vihara aspect

Nature of Work	Vyayama	Abhighata / Injury	Nidra
Sedentary (Studying)	Nil	Nil	Samyak

- B) *AGNI* : *Vishamagni*
 C) *KOSTHA* : *Madhyama*
 D) *MANASIKA HETU* : *Chinta*

ASHTA STHANA PARIKSHA:

Table No. 2 showing the Astha Sthana Pariksha

Nadi	Vata-Pittaja	Shabda	Prakrutha
<i>Mutra</i>	Samyak/Prakrutha	<i>Sparsha</i>	Snigdha, Ushna
<i>Mala</i>	Regular/Prakrutha	<i>Drik</i>	Vikruti (Refractive errors-6/60)
<i>Jihwa</i>	Prakrutha/Nirama	<i>Akriti</i>	Madhyama, Left lateral curve of spine

DASHA VIDHA PARIKSHA:

Table No. 3 showing the Dasha Vidha Pariksha

Prakruthi	Vata-Kaphaja	Satmya	Madhyama
<i>Vikrithi</i>	Dosha: Vata, Pitta Dushya: Asthi, Mamsa, Majja	<i>Satwa</i>	Madhyama
<i>Sara</i>	Mamsa Sara	<i>Ahara Shakti</i>	Madhyama
<i>Samhanana</i>	Madhyama	<i>Vyayama Shakti</i>	Avara
<i>Pramana</i>	Ht.: 171cm Wt.: 70kg	<i>Vayah</i>	Youvana (23 yr)

(Source of Prakruthi re-confirmed by Desh Ka Prakruti Parikshan tool)

SAMANYA PARIKSHA (GENERAL EXAMINATION):

Table No. 4 showing the Samanya Pariksha (General Examination) of the patient

Consciousness: Conscious	Height: 171cm	BP: 120/80 mm of Hg
Pulse Rate: 72/min, Regular	Weight: 70kg	Heart Sounds: S1, S2 ++ heard
Respiratory Rate: 16/min	BMI: 23.9 kg/m ²	Nourishment: Moderately nourished
Temperature: Afebrile	Built: Moderate	Tongue: Mild coated

VISHESHA PARIKSHA (SYSTEMIC EXAMINATION):

- CENTRAL NERVOUS SYSTEM:** Patient is Conscious, Coherent and Well-Oriented.
- CARDIO-VASCULAR SYSTEM:** S1, S2 heard. No murmurs or abnormal sounds heard.
- RESPIRATORY SYSTEM:** Shape and Size of the chest is normal. BAE +.
- GASTRO-INTESTINAL SYSTEM:** Abdomen is soft. No tenderness/pain.

- 5. **GENITO-URINARY SYSTEM:** Urine: Clear, NAD.
- 6. **LOCOMOTOR SYSTEM:** Stumbling Gait, Left lateral curve of the spine – Scoliosis, Inability to walk without support.

PATHOLOGICAL FINDINGS: (27/01/2025)

Table No. 5 showing the Pathological findings

Hb%: 15.8 g/dL	ESR: 9mm/hr	Platelets: 281 X 10 ³ /mm
HbA1c: 5.2%	RA factor: 4.33	ASO – Quantitative: 240.37 IU/ml
Serum Calcium: 9.8 mg/dL	C-Reactive Protein: 1mg/L	T3: 1.08 ng/mL
Vitamin B12: 340 pg/mL	Serum Uric Acid: 7.2 mg/dL	T4: 9.9 µg/dL
Blood Urea: 15mg/dL	Serum Creatinine: 0.9mg/dL	TSH: 2.155 µIU/mL
Vitamin D3: 45.99 ng/mL	S. Bilirubin(T): 1.67mg/dL	S. Total Protein: 7.25 gm/dL
S. Albumin: 4.70 gm/dL	SGOT: 21 U/L	SGPT: 29 U/L
Globulin: 2.55 gm/dL	Alk. Phosphate: 79 U/L	S. Cholesterol: 216mg/dL
S. Triglycerides: 195mg/dL	S. HDL: 31 mg/dL	S. LDL: 146 mg/dL

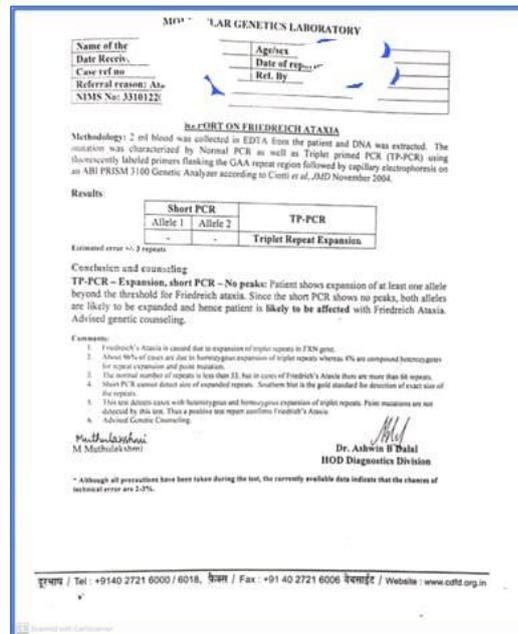
(Source: Telangana Diagnostics at Dr. BRKRGAMC&H)

RADIOLOGICAL FINDINGS:

MRI OF CERVICAL SPINE:



MOLECULAR GENETICS REPORT:



FRIEDREICH ATAXIA GENE ANALYSIS:

Name	Age/sex	: 17 Y / M
Lab No	Receiving Date	: 18/01/2019
Reporting Centre	Reporting Date	: 01/02/2019
Referred by		
FRIEDREICH ATAXIA, FXN GENE ANALYSIS		
(PCR, Fragment Analysis)		
Expanded GAA Repeats	DETECTED	
Interpretation		
RESULT	REMARKS	
Detected	Indicates >70 GAA repeats in the sample submitted	
Indeterminate	Indicates presence of inherent inhibitors in the sample submitted	
Not Detected	Indicates 5-34 GAA repeats in the sample submitted	

Friedreich's Ataxia, FXN Gene Analysis:

*Expanded GAA Repeats: **DETECTED**
 ***INTREPRETATION:** Detected indicates >70 GAA repeats in the sample submitted
 *The most common molecular abnormality is a GAA trinucleotide repeat expansion in intron 1 of the FXN gene.

ON EXAMINATION FINDINGS:

Darshana (Inspection), Sparshana (Palpation) and Prashna (Enquiry):

Table No. 6 showing the On-examination findings on Inspection

Sl.No.	Parameter	Observation
1.	Milestones' development	Normal
2.	Scoliosis	Positive (Left lateral curve of the spine)
3.	Pes Planus	Positive
4.	Romberg's Test	Positive
5.	Heel to Toe Test	Positive
6.	Reflexes	
	Knee Reflex (B/L)	Areflexia
7.	Triceps Reflex (B/L)	Areflexia
8.	Plantar Reflex	Positive (B/L)
9.	Ankle Reflex (B/L)	Areflexia
10.	Stumbling Gait	Positive
11.	Ataxic Gait	Positive
12.	Shortness of Breath (SOB)	Mild SOB on exertion while walking/driving with excess sweating
13.	Dysmetria	Positive
14.	Dysarthria	Positive
15.	Dysdiadochokinesia	Positive
16.	Cerebellar Dysfunction	Positive
17.	Proprioception	Negative
18.	Nystagmus	Positive – Horizontal Nystagmus

DIAGNOSTIC CRITERIA:**OBJECTIVE PARAMETERS:**

- Assessment by SARA Scale
- Assessment by Modified Friedreich Ataxia Rating Scale (mFARS)

Scale for the Assessment and Rating of Ataxia (SARA)

Scale for the assessment and rating of ataxia (SARA)	
<p>1) Gait Proband is asked (1) to walk at a safe distance parallel to a wall including a half turn around to face the opposite direction of gait and (2) to walk in tandem (heel to toe) without support.</p> <p>0 Normal, no difficulties in walking, turning and walking tandem (up to one misstep allowed) 1 Slight difficulties, only visible when walking 10 consecutive steps in tandem 2 Clearly abnormal, tandem walking > 10 steps not possible 3 Considerable staggering, difficulties in half-turn, but without support 4 Marked staggering, intermittent support of the wall required 5 Severe staggering, permanent support of one stick or limb support by one arm required 6 Walking > 10 m only with strong support (two special sticks or stroller or accompanying person) 7 Walking > 10 m only with strong support (two special sticks or stroller or accompanying person) 8 Unable to walk, even supported</p> <p>Score</p>	<p>2) Stance Proband is asked to stand (1) in natural position, (2) with feet together in parallel (big toes touching each other) and (3) in tandem (both feet on one line, no space between heel and toe). Proband does not wear shoes, eyes are open. For each condition, three trials are allowed. Best trial is rated.</p> <p>0 Normal, able to stand in tandem for > 10 s 1 Able to stand with feet together without sway, but not in tandem for > 10 s 2 Able to stand with feet together for > 10 s, but only with sway 3 Able to stand for > 10 s without support in natural position, but not with feet together 4 Able to stand for > 10 s in natural position only with intermittent support 5 Able to stand > 10 s in natural position only with constant support of one arm 6 Unable to stand for > 10 s even with constant support of one arm</p> <p>Score</p>
<p>3) Sitting Proband is asked to sit on an examination bed without support of feet, eyes open and arms outstretched to the front.</p> <p>0 Normal, no difficulties sitting > 10 sec 1 Slight difficulties, intermittent sway 2 Constant sway, but able to sit > 10 s without support 3 Able to sit for > 10 s only with intermittent support 4 Unable to sit for > 10 s without continuous support</p> <p>Score</p>	<p>4) Speech disturbance Speech is assessed during normal conversation.</p> <p>0 Normal 1 Staggered or speech disturbance 2 Impaired speech, but easy to understand 3 Occasional words difficult to understand 4 Many words difficult to understand 5 Only single words understandable 6 Speech unintelligible / anarthria</p> <p>Score</p>

SARA SCALE BY SCHMITZ HUBSCH

<p>5) Finger chase Rated separately for each side Proband sits comfortably. If necessary, support of feet and trunk is allowed. Examiner sits in front of proband and performs 3 consecutive raddas and fast pointing movements in unpredictable directions in a frontal plane at about 50% of proband's reach. Movements have an amplitude of 30 cm and a frequency of 1 movement every 2 s. Proband is asked to follow the movements with his index finger as fast and precisely as possible. Average performance of last 3 movements is rated.</p> <p>0 No dysmetria 1 Dysmetria, under/ overshooting target < 5 cm 2 Dysmetria, under/ overshooting target < 15 cm 3 Dysmetria, under/ overshooting target > 15 cm 4 Unable to perform 3 pointing movements</p> <p>Score</p>	<p>6) Nose-finger test Rated separately for each side Proband sits comfortably. If necessary, support of feet and trunk is allowed. Proband is asked to point repeatedly with his index finger from his nose to examiner's finger which is in front of the proband at about 50% of proband's reach. Movements are performed at moderate speed. Average performance of movements is rated according to the amplitude of the kinetic tremor.</p> <p>0 No tremor 1 Tremor with an amplitude < 2 cm 2 Tremor with an amplitude < 5 cm 3 Tremor with an amplitude > 5 cm 4 Unable to perform 5 pointing movements</p> <p>Score</p>
<p>7) Fast alternating hand movements Rated separately for each side Proband sits comfortably. If necessary, support of feet and trunk is allowed. Proband is asked to perform 10 cycles of repetitive alternation of pron- and supination of the hand on his/her thigh as fast and as precise as possible. Movement is demonstrated by examiner at a speed of approx. 10 cycles within 7 s. In act times for movement execution have to be taken.</p> <p>0 Normal, no impairment (perform < 10s) 1 Slightly irregular (perform < 10s) 2 Clearly irregular, single movements difficult to distinguish or relevant interruptions, but perform < 10s 3 Very irregular, single movements difficult to distinguish or relevant interruptions, perform > 10s 4 Unable to complete 10 cycles</p> <p>Score</p>	<p>8) Heel-shin slide Rated separately for each side Proband lies on examination bed, without slight of his legs. Proband is asked to lift one leg, point with the heel to the opposite knee, slide down along the shin to the ankle and lay the leg back on the examination bed. The task is performed 3 times. Slide-down movements should be performed within 1 s. If proband slides down without contact to shin in all three trials, rate 4.</p> <p>0 Normal 1 Slightly abnormal, contact to shin maintained during 3 cycles 2 Clearly abnormal, goes off shin up to 3 times during 3 cycles 3 Severely abnormal, goes off shin 4 or more times during 3 cycles 4 Unable to perform the task</p> <p>Score</p>
<p>mean of both sides (R+L)/2</p>	<p>mean of both sides (R+L)/2</p>

https://www.physio-pedia.com/Scale_for_the_Assessment_and_Rating_of_Ataxia_%28SARA%29

mFARS SCALE:

Bulbar function	<ul style="list-style-type: none"> Cough as hard as you can (0-2) Speech: Read two sentences (0-3)
Upper limb coordination	<ul style="list-style-type: none"> Finger to finger (0-3) Nose-finger-nose (0-4) Dysmetria (finger to examiner's finger) (0-4) Rapid alternating movements of hands (0-3) Finger taps (0-4)
Lower limb coordination	<ul style="list-style-type: none"> Heel along shin line (0-4) Heel to shin tap (0-4)

Upright stability	<ul style="list-style-type: none"> Sitting posture (0-4) Stance <ul style="list-style-type: none"> Feet apart, eyes open (0-4) Feet apart, eyes closed (0-4) Feet together, eyes open (0-4) Feet together, eyes closed (0-4) Tandem (0-4) On dominant foot (0-4) Tandem walk (0-3); Gait (0-5)
--------------------------	--

<https://www.emjreviews.com/flagship-journal/symposium/the-importance-of-early-recognition-diagnosis-and-treatment-of-friedreich-ataxia-j190324/>

TREATMENT PLAN:

Prognosis:

As the patient in the present study is in *Youvana Avastha*, the disease being *Vata Vyadhi* and existing as *Madhyama Rogamargagata Vyadhi*, contributes its *Sadhya Asadhyata* (prognosis) to be *Yapya* rather than *Krchhra Sadhya*. Hence, in order to handle the degenerative changes due to progressive *Vata Vyadhi* with prominent involvement of *Majja Dhatu*, *Snayu* and *Ojas*, occurring on a background of *Beeja Dosha* or *Beejabhaga avayava* (hereditary or genetic defect). Considering the congenital and neurodegenerative nature of Friedreich's Ataxia, the prognosis in Ayurveda is generally guarded. The patient was treated with *Vata Shamana*, *Brimhana*, *Rasayana* and *Majja poshana* therapies, which helps in reducing the rate of neurological deterioration, improving muscle coordination and endurance, supporting cardiometabolic stability and enhancing psychological well-being. During the 55-day treatment period, sustained supportive interventions led to symptomatic stabilization, preservation of mobility and enhanced quality of life, aligning with goals of palliative care, supportive management and complication prevention. And finally, the **Need for treating an *Asādhyā Vyadhi* like FA lies not merely in attempting disease reversal, but in consciously striving to enhance quality of life, preserve functional independence and sustain dignity in the face of progressive pathology. The true prognostic value of any therapeutic system is reflected in how effectively it mitigates**

disability, slows deterioration and supports the patient in achieving the best possible level of recovery and day-to-day well-being despite the chronic and genetic nature of the disorder.

Patient was treated following the below treatment protocol –

A. SHAMANA AUSHADHIS:

For 1 month: [From 05/02/2025]

1. Cap. Gufispon 625mg – 1 cap twice before food with water
2. Cap. NURO-XT – 1 cap twice after food with water
3. Cap. *Sahacharadi tailam* – 1 cap twice before food with water
4. Tab. Anulomana-DS – 1 tab at 8pm after food with water

For next 10 days: [From 05/03/2025]

1. Tab. *Vasantakusumakara Rasa* – 1 tab after breakfast with water
2. Tab. *Kanchanara guggulu* – 2 tabs twice after food with water
3. Cap. *Maharaja Prasarini tailam* – 1 cap before breakfast with water

For next 1 month: [From 17/03/2025 onwards]

1. Tab. *Brihat Vata Chintamani Ras* – 1 tab after breakfast with water
2. Tab. *Rasaraja Ras* – 1 tab at 8pm after food with water
3. Cap. *Sahacharadi tailam* – 1 cap twice before food with water
4. Cap. Plegineuron – 1 cap twice after food with water
5. *Sahacharadi tailam* – for external application

B. BAHIR PARIMARJANA CHIKITSA:

1. *Sarvanga Abhyanga* with *Balaswagandhadi Tailam* followed by *Bhaspa sweda* with *Vatahara dravyas* for 05 days.
2. *Shastikashali Pinda Sweda* for 07 days.
3. *Shirodhara* with *Balaswagandhadi Tailam* and *Sahacharadi Tailam* in 1:1 ratio for 07 days in the morning times.

C. SODHANA CHIKITSA:

1. *Kala Vasti* with *Mahamasha Tailam* and *Mustadi Yapana Vasti* for 16 days.
2. *Yoga Vasti* with *Sahacharadi Tailam* and *Mustadi Yapana Vasti* for 08 days.

PATHYA AHARA & VIHARA:

Snigdha, *Ushna* and *Manda ahara* like *Yavagu*, *Masha*, *Yusha*, *Ghrita yukta anna*, *Payasa* and *Drava bhakta* (moist grains), *Ushna Jala Sevana*, *Godugdha*, *Madhura Amla Lavana rasa pradhana Ahara Sevana*, whole grains like oats, quinoa, starchy vegetables, legumes and unsweetened fruits. *Yogasana*, *Ushna Jala Snana* and *Samyak Nidra*.

APATHYA AHARA & VIHARA:

Ruksha, *Sheeta Alpa ahara* like *Ruktadhaanya* (millets), *Shuska shaka*, *Vishama ahara Sevana*, *Katu-Tikta-Kashaya rasa pradhana Ahara*, *Viruddha Ahara*, *Sheetala Jala*, *Nava Madya*, *Sushka Mamsa Sevana*, Sugary drinks, white flour, artificial sweeteners, processed meats, Refined/processed foods. *Chinta*, *Ati vyayama*, *Sheeta Vayu Sevana*, *Vega Dharana*, *Atishrama*, *Ratri Jagarana*

TREATMENT PERIOD: For a period of 55 days.

Date of Treatment commencement : 24/01/2025

Date of Treatment conclusion : 19/03/2025

INTERVENTION:



TREATMENT TIMELINE: (45 days)



OBSERVATIONS & RESULTS:

Assessment of Friedreich's Ataxia by the **Scale for the Assessment and Rating of Ataxia (SARA)**.

Table No. 7.1 showing the **SARA Scale Observations**

Sl.No. o.	Traits	Before Treatment	After Treatment
1.	Gait	7	1
2.	Stance	2	4
3.	Sitting	2	0
4.	Speech Disturbance	2	2
5.	Finger Chase	1	1
6.	Nose-Finger Test	1	1
7.	Fast Alternating Hand Movements	2	1
8.	Heel-Shin Slide	2	1
	TOTAL	19	10

Assessment of Friedreich's Ataxia by the **Modified Friedreich's Ataxia Rating Scale (mFARS)**.

Table No. 7.2 showing the **mFARS Scale Observations**

Sl. No.	Scale Traits	Before Treatment	After Treatment
A.	BULBAR FUNCTION		
1.	Cough	1 (Depressed)	0 (Normal)
2.	Speech	1 (Mild)	1 (Mild)
B.	UPPER LIMB CO-ORDINATION		
1.	Finger to Finger Test	2 (Moderate)	1 (Mild)
2.	Nose-Finger Test	3 (Severe)	1 (Mild)
3.	Dysmetria Test	3 (Severe)	2 (Moderate)
4.	Rapid Alternating Movements of Hands	2.5	1.5
5.	Finger Taps	3 (Severe: missed 10-15 times)	2 (Moderate: missed 4-9 times)
C.	LOWER LIMB CO-ORDINATION		
1.	Heel along Shin Slide	3 (Severe)	2 (Moderate)
2.	Heel to Shin Tap	3 (Goes off shin >5 times)	2 (Misses shin 3-5 times)
D.	UPRIGHT STABILITY		
1.	Sitting Posture	1 (Mild)	1 (Mild)
2.	Stance – Feet Apart – Eyes Open	3 (15-30 sec)	1 (45 sec – 1 min)
3.	Stance – Feet together	3 (15-30 sec)	2 (30-45 sec)
4.	Tandem Stance	4 (<15 sec)	3 (15-30 sec)
5.	Stance on Dominant Foot	4 (<15 sec)	3 (15-30 sec)
6.	Tandem Walk	3 (Too poorly co-ordinated)	2 (Able to walk ≤ 4 steps)
7.	Gait	4 (Severe ataxia, needs support)	2 (Needs intermittent support)
TOTAL SCORE		43.5	26.5

KALA VASTI OBSERVATIONS FOR 16 DAYS:*Table No. 8 showing the Kala Vasti Schedule*

DAY	DATE	ANUVASANA/MUSTADI YAPANA VASTI	GIVEN TIME	EVACUATION TIME	VRT
1	29/1/25	AV with Mahamasha T	12:45pm	5:40pm	5hr
2	30/1/25	AV with Mahamasha T	12:35pm	6:50pm	6hr 15min
3	31/1/25	AV with Mahamasha T	10:30am	2:50pm	4hr 20min
4	1/2/25	Mustadi Yapana Vasti	12:20pm	12:30pm	10min
5	3/2/25	AV with Mahamasha T	9:50am	3:15pm	5hr 25min
6	4/2/25	Mustadi Yapana Vasti	10:50am	11:10am	20min
7	5/2/25	AV with Mahamasha T	10:30am	4:50pm	5hr 20min
8	6/2/25	Mustadi Yapana Vasti	11:35am	11:45am	10min
9	7/2/25	AV with Mahamasha T	9:50am	10:45am	55min
10	8/2/25	Mustadi Yapana Vasti	11:10am	11:20am	10min
11	10/2/25	AV with Mahamasha T	10:10am	5:45pm	7hr 35min
12	11/2/25	Mustadi Yapana Vasti	11:00am	11:25am	25min
13	12/2/25	AV with Mahamasha T	9:55am	11:00am	1hr 5min
14	13/2/25	Mustadi Yapana Vasti	11:25am	11:45am	20min
15	14/2/25	AV with Mahamasha T	11:30am	6:30pm	7hr
16	15/2/25	AV with Mahamasha T	12:00pm	7:00pm	7hr

YOGA VASTI OBSERVATIONS FOR 08 DAYS:*Table No. 9 showing the Yoga Vasti Schedule*

DAY	DATE	ANUVASANA/MUSTADI YAPANA VASTI	GIVEN TIME	EVACUATION TIME	VRT
1	11/3/25	AV with Sahacharadi T	10:20am	11:30am	1hr 10min
2	12/3/25	AV with Sahacharadi T	10:40am	11:40am	1hr
3	13/3/25	Mustadi Yapana Vasti	11:18am	11:28am	10min
4	14/3/25	AV with Sahacharadi T	10:55am	12:00pm	1hr 5min
5	15/3/25	Mustadi Yapana Vasti	10:50am	11:00am	10min
6	17/3/25	AV with Sahacharadi T	10:30am	11:35am	1hr 5min
7	18/3/25	Mustadi Yapana Vasti	11:00am	11:10am	10min
8	19/3/25	AV with Sahacharadi T	10:30am	11:40am	1hr 10min

OBSERVATIONS:*Table No. 10 showing the Observation of the Results*

SL.NO.	TREATMENT	OBSERVATION
1.	<i>Sarvanga Abhyangam</i> with <i>Balaswagandhadi Tailam</i> followed by <i>Bhaspa Sweda</i> with <i>Vatahara Dravyas</i> for 05 days	1. Able to walk slowly with minimal support. 2. Able to walk for >10min without pain in the knee joints.
2.	<i>Kala Vasti</i> Schedule with <i>Mahamasha Tailam</i> and <i>Mustadi Yapana Vasti</i> for 16 days	1. Felt light in body weight. 2. Exertion reduced and no excess sweating. 3. Increased pace of speed in walking than before with protective support.
3.	<i>Shastika Shali Pinda Sweda</i> for 07 days	1. Felt weak after the procedure. 2. Able to stand without pain for >30min. 3. Walking and standing duration increased for >20min. 4. Visual acuity improved, assessed by Finger-Nose test.
4.	<i>Shirodhara</i> with <i>Balaswagandhadi Tailam</i> and <i>Sahacharadi Tailam</i> in 1:1 ratio for 07 days	1. Felt confident while walking. 2. Tandem walk improved in number of steps. 3. Adequate sleep.
5.	<i>Yoga Vasti</i> Schedule with <i>Sahacharadi Tailam</i> and <i>Mustadi Yapana Vasti</i> for 08 days	1. All the improvements in the symptoms persisted. 2. Continuing <i>Shamana Aushadhis</i> .

DISCUSSION:

Friedreich's Ataxia, an autosomal recessive neurodegenerative disorder leading to mitochondrial iron dysregulation, oxidative stress and progressive neuronal dysfunction, particularly within the cerebellar and spinocerebellar pathways. In the present case, the patient exhibited **clinically meaningful improvement across multiple neurological domains** following an integrative Ayurvedic intervention.

Interpretation of SARA Scale Outcomes

The Scale for the Assessment and Rating of Ataxia (SARA) demonstrated a clinically meaningful reduction from **19 (pre-treatment) to 10 (post-treatment)**, indicating substantial improvement in overall ataxic severity. A baseline score of 19 corresponds to moderate functional impairment, characterized by marked gait instability, impaired coordination and compromised postural control. Reduction to 10 reflects transition toward mild-to-moderate ataxia, suggesting improved motor regulation and enhanced functional independence.

Domain-wise analysis reveals pronounced improvement in gait (7 → 1) and sitting stability (2 → 0), indicating better axial control and cerebellar integration. Improvements in heel–shin coordination and rapid alternating movements further support enhanced limb coordination and motor planning. Stability in speech disturbance suggests partial but persistent bulbar involvement, consistent with the progressive nature of Friedreich's ataxia.

From an Ayurvedic perspective, these changes suggest attenuation of *Vyana Vata* dysfunction and partial relief of *Praṇa-avarāṇa*, reflecting improved neuromuscular synchronization. Although Friedreich's Ataxia remains an *Asadhya* (genetic) condition, the observed reduction in SARA score signifies favourable prognostic modulation—marked by slowed progression, functional stabilization and improved quality of life rather than disease reversal.

Neurological Significance of Observed Improvements assessed by mFARS Scale

The total neurological impairment score improved from **43.5 before treatment to 26.5 after treatment** assessed by mFARS Scale, reflecting global functional gains rather than isolated symptomatic changes. Importantly, improvements were noted in cerebellar coordination, upright stability and gait.

Bulbar function showed partial recovery, with normalization of cough reflex, suggesting improved neuromuscular coordination and bulbar control. Preservation of speech function without further deterioration is clinically relevant, as dysarthria in FA often progresses steadily and negatively impacts communication and quality of life.

Upper limb coordination demonstrated marked improvement, particularly in finger-to-finger testing, nose-finger testing, dysmetria and rapid alternating movements. These changes suggest improved cerebellar modulation and proprioceptive integration.

Lower limb coordination and Upright stability showed consistent gains, with reduction in severity scores for heel-shin testing, stance duration, tandem stance and gait. The shift from severe ataxia requiring continuous support to a state requiring only intermittent support represents a clinically significant milestone in FA management, as gait impairment is strongly associated with fall risk, disability and psychosocial burden. **Balaswagandhadi Tailam** has key ingredients such as *Aswagandha*, *Bala*, *Tila Tailam*, etc. *Aswagandha* has withanolides and alkaloids with demonstrated antioxidant, anti-inflammatory, neuroprotective and mitochondrial-stabilizing effects. *Balaswagandhadi Tailam*, with its *Vata-Shamaka*, *Brihmana* and Neuroprotective properties, may contribute to improved neuromuscular coordination and functional stability in Friedreich's Ataxia by supporting *Majja Dhatu* and modulating *Vyana Vata* dysfunction. The observed clinical improvements in gait and limb coordination can be interpreted as reflective of enhanced motor control and reduced *Vata* aggravation, thereby aiding functional resilience despite the progressive nature of the disorder.

Sahacharadi Tailam has key ingredients such as *Sahachara*, *Devadaru*, *Sunthi*, etc. This formulation is known for its potent *Vatahara* and neuromuscular strengthening properties, may support improved lower limb coordination, gait stability and reduction in stiffness in Friedreich's Ataxia by modulating aggravated *Vyana Vata* and nourishing *Snayu-Majja* structures. The observed functional gains in balance and ambulatory confidence can be interpreted as indicative of enhanced motor integration and symptomatic stabilization.

Shastikashali Pinda Sweda: This therapy provides external nourishment and enhances local circulation, muscle tone and neuromuscular responsiveness. *Shastikashali Pinda Sweda*, being a *Brihmana* (nourishing) and *Vata* pacifying therapy, may enhance muscle strength, improve proprioceptive feedback and reduce stiffness in Friedreich's ataxia by supporting depleted *Majja* and *Mamsa Dhatus*. The observed improvements in postural stability and coordinated limb movements can be interpreted as reflective of better neuromuscular responsiveness and functional endurance, contributing to improved mobility despite the progressive nature of the condition.

Impact of Mustadi Yapana Vasti: *Yāpana Vasti* is considered the most appropriate therapeutic modality, given its capacity to sustain function, nourish depleted tissues and regulate disordered *Vata* rather than attempt curative reversal. *Mustadi Yapana Vasti* is specifically indicated in *Kshayajanya*, *Balahina* and Chronic *Vata* disorders, particularly those involving neurological and neuromuscular degeneration. Its formulation combines *Brimhana*, *Rasayana* and *Vata Shamaka dravyas*, making it uniquely suited for Friedreich's Ataxia.

Mustadi Yapana Vasti acts by:

- Restoring *Prana-Vyana anulomana*, improving neuromotor coordination.
- Nourishing *Majja Dhatu*, countering progressive neurodegeneration.
- Reducing *Vata Rukshata* and *Chala guna*, stabilizing gait and posture.

Key ingredients such as *Musta* (*Cyperus rotundus*), *Bala* (*Sida cordifolia*), *Yaştimadhu* (*Glycyrrhiza glabra*), *Aswagandha* (*Withania somnifera*), *Goghrita* and *Ksheera* provide antioxidant and anti-inflammatory effects.

Anticipated Clinical Outcomes of Mustadi Yapana Vasti in FA

Given the non-reversible genetic basis of Friedreich's Ataxia, *Mustadi Yapana Vasti* should be evaluated through functional and prognostic outcomes, rather than cure. Expected benefits include:

- Stabilization or slowing of disease progression
- Improvement in gait, balance and limb coordination
- Reduction in fatigue, stiffness and improve the neuromuscular efficiency
- Enhanced endurance and quality of life
- Delayed onset of complications such as severe immobility and dependence

An Ayurvedic prognostic perspective aligns with the concept of *Yapya Vyadhi*, where long-term, well-planned therapy sustains function and dignity of life despite persistent pathology.

Interpretation for Kala Vasti and Yoga Vasti Schedule

The retention profile across both *Vasti* schedules demonstrates physiologically appropriate therapeutic responses consistent with classical expectations.

In the **Kala Vasti series**, the Average *Vasti* Retention Time during the *Kala Vasti* Schedule for 16 days is 5hr for the *Anuvasana Vasti* series and 15-20 minutes for the *Mustadi Yapana Vasti*.

Anuvasana Vasti showed prolonged retention (for about 5 hours), which is desirable in chronic *Vata*-dominant neurodegenerative disorders such as Friedreich's Ataxia. Extended retention facilitates deeper *Snehana* (oleation), *Brimhana* (tissue nourishment) and sustained *Vata-shamana*, particularly beneficial in *Majja-dhatu kshaya* and *Vyana Vata* dysfunction. The comparatively shorter retention of *Mustadi Yapana Vasti* (for about 15-20 minutes) aligns with classical *Niruha* pharmacodynamics, indicating effective systemic action without undue bowel irritation.

In the **Yoga Vasti series**, the Average *Vasti* Retention Time during the *Yoga Vasti* Schedule for 08 days is 1hr for the *Anuvasana Vasti* series and 10 minutes for the *Mustadi Yapana Vasti*. The moderate retention of *Anuvasana* (for about 1 hour) reflects a maintenance-phase response, adequate for neuromodulation without excessive *Snehana*. The consistent 10-minute retention of *Mustadi Yapana Vasti* suggests proper evacuation dynamics and balanced *Apana-Vyana* coordination. These observations highlight the critical relevance of a systematically structured and individualized *Vasti* schedule in the therapeutic management of Friedreich's Ataxia.

CONCLUSION:

The present case highlights the clinical applicability of Ayurvedic diagnostic frameworks in interpreting and managing a complex neurodegenerative disorder such as Friedreich's Ataxia. Based on the constellation of *Lakshanas* described in the patient—progressive gait ataxia, impaired coordination, postural instability, dysarthria and declining functional endurance — the condition was comprehensively assessed through the lens of *Avruta* and *Gata Vata*. The dominance of *Pranavruta Samana Vata Vyadhi*, supported by features of *Majja Gata* and *Mamsamedogata Vata* (painful severe fatigue).

Kaphavruta Vata contributes to *lakshanas* like *Ayasa* (exertion). *Majjavruta Vata* contributes to *lakshanas* like *Vinama*, *Pariveshtana* (Flexure/bending/curvature of the body). *Pranavruta Samana Vata* contributes to *lakshanas* like *Gadgada*, *Mukata* (Slurred or muted speech). *Udanavruta Prana Vata* contributes to *lakshanas* like *Karma-ojas-bala-varna nasha* and *Mrityu* (loss of function, *Ojas*, strength and complexion or it may even lead to death). Classical descriptions of *Prana avarana* such as *Gati Sankocha*, *Cheshta Vaigunya*, *Balahani* and *Stambha* – closely paralleled with the patient's Clinical presentation.

The combined application of *Shamana*, *Bahya Parimarjana* and systematically scheduled *Kala* and *Yoga Vasti* appear to have effectively addressed *Vyana Vata* dysfunction, *Majja kshaya* and neuromuscular depletion. Particularly, the rational sequencing of *Anuvasana* and *Mustadi Yapana Vasti* demonstrated appropriate retention dynamics, suggesting optimal *Vata-shamana*, *Brimhana* and neuromodulatory action.

Despite the genetically determined nature of *Friedreich's* Ataxia, the observed reduction in total neurological impairment score and functional improvements suggest that appropriately planned *Vata Shamaka*, *Brimhana* and *Prana-Vyana anulomana* oriented interventions can influence disease expression. These outcomes align with Ayurvedic objectives in incurable or difficult-to-cure disorders, namely *rogasthiti nivarana*, *Vyadhi pragati niyantrana* and *Jeevana guna vardhana* (maintenance of quality of life). Future management should emphasize long-term *Vata* modulation, periodic *Shodhana & Shamana* cycles, neuroprotective *Rasayana* support, physiotherapy integration and vigilant monitoring of disease progression.

Such outcomes reinforce the role of integrative Ayurvedic management in supporting neurological resilience and sustaining day-to-day independence in chronic neurodegenerative disorders. Though it is a *Yapya Vyadhi*, appropriate and sustained management can meaningfully enhance the patient's quality of life, preserve functional independence and reduce disease-related burden. Such supportive care not only benefits the patient physically and psychologically but also offers significant emotional reassurance and practical relief to the family, strengthening their capacity to cope with a chronic, progressive condition.

ACKNOWLEDGEMENT:

Sincere acknowledges to Dr. Ananta S. Desai, Professor & HOD, for his scholarly work on this subject, which served as a reference in the management of this case.

CONFLICT OF INTEREST:

There is no conflict of interest to declare, related to this article.

REFERENCES:

1. **Charaka Samhita**, Chikitsa sthana, Vata vyadhi Chikitsa Adhyaya. Varanasi: Chaukhambha Surbharati Prakashan.
2. **Sushruta Samhita**, Nidana sthana, Vata vyadhi Nidana. Varanasi: Chaukhambha Orientalia.
3. **Aṣṭāṅga Hṛīdaya**, Nidana sthana & Chikitsa sthana, Vata vyadhi Adhyaya. Varanasi: Chaukhambha Krishnadas Academy.
4. Pandey, G. (2019). *Ayurveda and Neurological Disorders*. Journal of Ayurveda and Integrative Medicine, 10(3), 205–212.
5. Kirtikar KR, Basu BD. *Indian Medicinal Plants*. Vol II. Dehradun: International Book Distributors; 2005.
6. Sharma PV. *Dravyaguna Vijnana*. Chaukhambha Bharati Academy; 2011.
7. Pandolfo M. Friedreich ataxia: the clinical picture. *J Neurol*. 2009;256(Suppl 1):3–8.
8. Delatycki MB, Corben LA. Clinical features of Friedreich ataxia. *J Child Neurol*. 2012;27(9):1133–1137.
9. Lynch DR, Farmer JM, Tsou AY, et al. Friedreich ataxia: effects of genetic understanding on clinical evaluation and therapy. *Arch Neurol*. 2006;63(4): 554–557.
10. Harding AE. Friedreich's ataxia: a clinical and genetic study of 90 families. *Brain*. 1981;104(3):589–620.
11. Reetz K, Dogan I, Hohenfeld C, et al. Noninvasive cerebral biomarkers in Friedreich ataxia. *Ann Neurol*. 2015;77(3):522–531.
12. Folker JE, Murdoch BE, Finch E. Dysarthria in Friedreich's ataxia: a perceptual analysis. *J Med Speech Lang Pathol*. 2003; 11:35–43.
13. Tohda C, Kuboyama T, Komatsu K. Search for natural products related to regeneration of the neuronal network. *Neurosignals*. 2005;14(1–2):34–45.
14. Peterson CT, Denniston K, Chopra D. Therapeutic uses of Panchakarma in Ayurveda. *J Altern Complement Med*. 2017;23(9): 1–12.
15. Corben LA, Delatycki MB. Clinical features and diagnosis of Friedreich ataxia. *Neurol Clin*. 2013;31(4): 1085–1100.