

CASE REPORT

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A Case Report of Friedreich's Ataxia Management in A 24-Year-Old Woman Based on Iranian Traditional Medicine

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ABSTRACT

Friedrich's ataxia is a genetic disease that is associated with impaired systemic body function due to a defect in the production of a mitochondrial protein, namely frataxin, and leads to functional defects in the central and peripheral nervous systems. The main manifestations of this disease are progressive ataxia in walking, limb tremor, dysarthria and lack of reflexes in the lower limbs. In this article, we present a case of Friedrich's ataxia in a 24-year-old woman under treatment with conventional methods, with obvious symptoms of ataxia in walking, limb tremor and dysarthria. Within 7 months of pharmacological treatment and nutritional recommendations based on Iranian traditional medicine, mentioned symptoms decreased by 40%, 65% and 80% respectively. Dietary recommendations included avoiding viscous, dense, and cold-tempered foods, while pharmacological prescriptions included brain and nerve tonics, heart tonics, liver tonics, drugs that removed moistures and coldness from nerves and drugs to promote liver digestion.

Keywords: Friedreich's Ataxia, Persian medicine, Iranian Traditional medicine

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Introduction

Friedrich's ataxia (FA) is an autosomal recessive disease, with the highest prevalence in Europe ranging from 1 in 20,000 to 1 in 250,000¹. A homozygous genetic defect in the frataxin (FXN) gene with replication of the GAA nucleotide sequence, it causes systemic insufficiency in the mitochondrial protein FXN^{1,2}. This mitochondrial protein plays a key role in iron metabolism, which includes a chain of iron-sulfur synthesis^{3,4}. As a result of this genetic defect, FXN expression is decreased, and consequently mitochondrial dysfunction and impaired oxidative stress reactions ensue⁵. FA affects the central and peripheral nervous systems, the musculoskeletal system, myocardium, the endocrine system and pancreas. The main manifestations include gait disturbance and progressive ataxia, limb tremor, dysarthria (motor speech disorder) and hyporeflexia in lower limb^{1,6}. Reducing oxidative stress reactions, increasing cellular FXN, promotion of mitochondrial activity, and regulation of FXN controlling metabolic pathways are current therapeutic strategies^{3,7}. However, despite many studies to discover a cure, no efficient drugs are available⁵. Iranian Traditional Medicine (ITM) is one of the oldest medical schools that has the capacity to propose treatments for many diseases including FA. Based on ITM literature, diseases are caused by changes in temperament, and also humor quantity and quality, and treatment is achieved via lifestyle modifications, especially nutrition, and pharmacological treatment. This article presents a case of FA controlled by nutritional and therapeutic recommendations based on the perspective of ITM.

Case Presentation

A 24-year-old woman who was diagnosed with FA through genetic testing 8 years ago with the onset of gait ataxia, referred to the outpatient clinic of the Faculty of Iranian Medicine, Tehran University of Medical Sciences with ataxic gait and slight dysarthria. She had a history of diabetes and mild hypertrophic cardiomyopathy since the age of 13. The patient was treated with verapamil, propranolol, CoQ10, and L-carnitine, and had a stem cell injection the year before. She complained of weakness, lethargy and drowsiness for most of the day, dizziness, tremors, and intolerance to cold air and cold-tempered foods. Climate and seasonal change, sour foods, rice and starchy foods such as pasta aggravated ataxia. In contrast, sound stimuli, resulted in an evasive defense response in the form of ataxia and a sense of tremor in the lumbar region. The patient experienced heartburn following consumption of heavy meals and cold-tempered foods, as well as short walks. She complained of drooling (sialorrhea). Her bowel movements were one to two times a day with incomplete evacuation. The length of menstrual cycles varied between 19 and 29 days. The duration of menstruation was 6 days, with spotting on the first three days.

Treatment and Results

First visit

Abstinence from cold-tempered, dense and viscous foods, sour foodstuff, dairy products (including yogurt), citrus fruits, bananas, dates, pasta, eggplant, fish, sheep's head and trotters, fava beans and pickles were advised and the treatments based on ITM principles were initiated. The first-time prescribed drugs are listed in Table 1.

Second visit: 1 month after the first referral

At the second visit, one month after the first, ataxic gait, tremors, and dysarthria improved

by 20%, 20%, and 30%, respectively. Weakness, drowsiness, dizziness, chest pain and burning, and runny mouth were approximately 70% -80% compared to the first visit. The drugs prescribed in the second visit are listed in Table 2.

Third visit: 7 months after the first referral

Symptoms of Friedrich's ataxia improved after 7 months of the first visit, while the patient was being treated as demonstrated in Table 3. This improvement was seen in FA-specific symptoms including ataxia as well as general symptoms.

Table 1. Medications on first visit	
Medication	Target
Saffron syrup + <i>Delphinium denudatum</i> pill	Heart, liver and nerve tonic
Brain tonic syrup + <i>Tonica-lowz</i> syrup	Nerve tonic
Silk paste	Nerve tonic
<i>Siah</i> pill (2 pills TDS)	Eliminating thick moistures from nerves and muscles
<i>Triliver</i> capsules (2 capsules morning and afternoon)	Promotion of the digestive function of liver
<i>Liaco</i> oil (topical administration)	Eliminating moistures from muscles
<i>Mafasel</i> ointment	Eliminating moistures from muscles

Table 2. Medications on second visit	
Medication	Target
Saffron syrup + <i>Ozhenar</i> syrup + <i>Delphinium denudatum</i> pill	Heart, liver and nerve tonic
Silk paste (1tsp BD)	Nerve tonic
<i>Dawa-ol Mesk</i> (1tsp following meals)	Heart and liver tonic
<i>Siah</i> pill (2 pills TDS)	Eliminating thick moistures from nerves and muscles
<i>Triliver</i> capsules (2 capsules morning and afternoon)	Promotion of the digestive function of liver

Table 3. Medications on third visit	
Medication	Target
Silk paste (1tsp BD)	Nerve tonic
<i>Dawa-ol Mesk</i> (1tsp following meals)	Heart and liver tonic
<i>Siah</i> pill (2 pills TDS)	Eliminating thick moistures from nerves and muscles
<i>Triliver</i> capsules (2 capsules morning and afternoon)	Promotion of the digestive function of liver
Valerian, lemon beebrush, lemon balm, and jujube decoction (evening)	Promotion of heart and nerve functions

The self-improvement scale is shown in Table 4.

Symptom	Improvement (%)
Ataxia	40
Dysarthria	80
Tremor	65
Dizziness	100
Lethargy	60
Heartburn	60
Drooling	80

Discussion

Based on ITM principles, FA is a cold dystemperament of the three vital organs namely brain (and nerves), heart, and liver. Cold dystemperament of the digestive tract and liver leads to disturbance in digestive function and hepatic digestion, and thus no fine humor is produced to provide nutrition for the brain and nerves. Moreover, coldness of the cardiovascular system results in inadequate blood supply to the nervous system. Hence, neurological symptoms are due to poor nutrition, poor circulation, and prevailing coldness and moisture accumulation in the nerves. The mentioned mechanism is the opinion of an ITM expert.

By advising the patient to avoid cold-tempered foods, we eliminated the factor contributing to the development of the disease. Silk paste, *Tonica-lowz* syrup, and brain tonic syrup were prescribed to strengthen the nerves. *Delphinium denudatum* pill was used to tonify the three vital organs, while *Dawa-ol Mesk* tonified the heart and also digestive power of the liver. Hepatic digestion was also promoted using *Triliver* capsules. *Siah* pill

was used to eliminate the coldness and moisture accumulation in neuromuscular tissues.

Conclusion

FA is a genetic disease with no efficient treatment currently available. ITM, one of the oldest medical schools, can be used to control specific and general symptoms of FA patients and increase their quality of life. Modification of lifestyle habits, especially nutrition, along with medications, can play an effective role in improving the symptoms of patients with FA.

Source of Funding

None

Conflict of Interest

All the authors declare no conflict of interest.

References

1. Cook A, Giunti P. Friedreich's ataxia: clinical features, pathogenesis and management. *British medical bulletin*. 2017;124(1):19-30.
2. Zhang S, Napierala M, Napierala JS. Therapeutic Prospects for Friedreich's Ataxia. *Trends in pharmacological sciences*. 2019;40(4):229-33
3. Tai G, Corben LA, Yiu EM, Milne SC, Delatycki MB. Progress in the treatment of Friedreich ataxia. *Neurologia i neurochirurgia polska*. 2018;52(2):129-39.
4. Gonzalez-Cabo P, Palau F. Mitochondrial pathophysiology in Friedreich's ataxia. *Journal of neurochemistry*. 2013;126 Suppl 1:53-64.
5. Alfedì G, Luffarelli R, Condò I, Pedini G, Mannucci L, Massaro DS, et al. Drug repositioning screening identifies etravirine as a potential therapeutic for friedreich's ataxia. *movement disorders*. 2019;34(3):323-34.
6. Schulz JB, Boesch S, Bürk K, Dürr A, Giunti P, Mariotti C, et al. Diagnosis and treatment of Friedreich ataxia: a European perspective. *Nature Reviews Neurology*.

2009;5:222.

7. Strawser C, Schadt K, Hauser L, McCormick A, Wells M, Larkindale J, et al. Pharmacological therapeutics in Friedreich ataxia: the present state. Expert review of neurotherapeutics. 2017;17(9):895-907.
8. Rezaeizadeh H, Alizadeh M, Naseri M, Ardakani MR Shams. The Traditional Iranian Medicine Point of View on Health and disease. Iranian Journal of Public Health. 2009;38(1):169-72.

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