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## Muscular Dystrophy (*Istirkha*) and its management through Unani Medicine: A Review

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### Abstract

Duchenne muscular dystrophy (DMD) is the commonest and severe form of muscular dystrophy seen in male. Genetically DMD is an X-linked recessive disorder which caused by mutations in the giant dystrophin gene. Slow and progressive muscle weakness start presenting soon after the age of 3 years. Severe weakness and wasting occurs in proximal muscles of lower limbs. Calf muscles are replaced by fat and connective tissue which leads to pseudo hypertrophy (a type of Sue Tarkeeb). Boys cannot walk by the age of 11 years and have to use a wheel chair. Incidence of MD is 1 in 3500 live male. Joint contracture and respiratory failure leads to death around 18 year's age. In spite of tremendous progress by the modern medical system in its various fields, it has failed to solve all the problems of health with which human life is faced. On the other hand modern trend of mechanization, isolation of the active principles out of the naturally occurring drugs of the balanced temperament and deterioration of the true ethical values, have posed a greater hazard to human health and life and have created for more serious problems. It is indeed, a healthy sign that the so called modern and sophisticated civilization has started to realise increasingly the reality of the situation and has risen to occasion in search of an alternate and safe healing system which could provide an answer to all the questions facing the humanity pertaining to his health.

**Keywords:** *Istirkha*, Muscular Dystrophy, Regimnal Therapy, Unani Medicine.

### 1. Introduction

Unani Medicine is based upon the *Nazariyya-i-Akhlat* (theory of humours), which presupposes the presence of four humours in the body, namely *dam* (blood), *balgham* (phlegm), *saфра* (yellow bile) and *sawda* (black bile) [1]. The *mizaj* (temperaments) of individuals are revealing accordingly by the words sanguine, phlegmatic, choleric and melancholic on the preponderance of the respective humour. The humours themselves are assigned temperaments. Blood is *harr* (hot) and *ratb* (moist); phlegm, *barid* (cold) and *ratb* (moist); yellow bile, *harr* (hot) and *yabis* (dry); black bile, *barid* (cold) and *yabis* (dry) [2]. In Unani Medicine, the human body is contemplate to contain of the following seven components, each having a close relation with the state of health of an individual; Element (*Arkan*): States of matter and the materials inflowing into and forming a part of the whole thing in the universe, Temperament (*Mizaj*): Bodily temperament, Humour (*Akhlat*): Body fluids, Spirit (*Ruh*): The vital force or life force, (*A'da*): Fully mature organs, Power (*Quwa*): The bodily powers or faculties and Function (*Af'al*): The corporeal functions [3]. We know that ruh (sprit/prana) and khilt (eg. Dam/blood) are two major life sustaining elements in the body. The ruh has been attributed like genetic material that carries life information essential for different activities. The dam (blood) is basis of biological force that provides nutrition at cellular level and covers the way of excretion of metabolic toxins. The driving force beyond blood is ruh which circulates itself to cellular level along with blood. The conjoint circulation of both blood and ruh is manifestation of hayat (life). This ruh is responsible for the contraction and relaxation of muscle fibre or muscular activity [4].

Besides, there is a residual power of self preservation or adjustment endowed by the nature, called *Tabi'at* (medicatrix naturae), which strives to restore any disturbance within the limits of the constitutional state of an individual [5]. Galen considers *Balgham* as having close resemblance with blood and all the organs are need of it. Its availability is made ensure in all parts of the body by its circulation along with the blood. Since, balgham includes: intracellular fluids, lymph, cerebrospinal fluids, digestive juices, seminal fluids, plasma protein, and endocrine secretion. But when *balgham tabi* (normal phlegm) turns into *balgham ghayr tabi* (abnormal) then loses its qualities. For changing its quality environment play key role for

changing *hadm udwi*. *Hadm udwi* are the chemical changes which facilitate sustenance of life and functioning of cells and for which certain nutrients and substrate are required to enter into and the wastes and synthesized product of the cells to come out of them.

Protein synthesis under the influence of Gene (DNA) can come under this function [6-8].

Abnormal balgham or excess *burudat* and *rutubat* lead to *murkhi* (pseudohypertrophy) and abnormal *hadm udwi* leads to *Istirkha*. According to Unani Medicine, a condition where muscles of an organ or the whole body become flaccid and are not able to perform function is called *Istirkha* and Huzal (Emaciation or cachexia) that may be caused by (1) nutritional deficiencies e.g. intake of low fat diet (2) weakness of the faculties of stomach due to its cold temperament (3) after discontinuation of regular and strenuous exercise (4) bilious temperament of an individual (5) dysfunctioning of liver (6) worm infestation (7) excessive catabolism e.g. in case of chronic debilitating illnesses, excessive grief, sorrow etc [5].

Duchenne muscular dystrophy (DMD) sign and symptoms is related to the *Istirkha* and *huzal*. DMD is the commonest and severe form of muscular dystrophy seen in male. Genetically it is an X-linked recessive disorder which is caused by mutations in the giant dystrophin gene. Slow and progressive muscles weakness start presenting soon after the age of 3 years. Severe weakness and wasting occurs in proximal muscles of lower limbs. Calf muscles are replaced by fat and connective tissue which leads to pseudo hypertrophy. Boys cannot walk by the age of 11 years and have to use a wheel chair. Its incidence of 1 in 3600-6000 live male [9].

Zakaria Razi (865-925 AD) critically assessed, in his book *Al-Havi Fit Tibb* Volume-I, Chapter-I (An Encyclopaedia of Medicine), all the available knowledge on *Istirkha* at that time [10, 11].

## 2. Types of Istirkha

Unani Physician describe different types of *Istirkha*: ***Rabw Istirkha'i*** (Shortness of breath due to the paresis of respiratory muscles); ***Laqwa Istirkha'i*** (Deviation of face due to flaccidity of the facial muscles); ***Istirkha' al- Hanjara*** (The flaccidity of laryngeal muscles due to the infiltration of fluids in them. In this condition the movement of larynx get stopped); ***Istirkha' al-Mi'da*** (A condition where tonicity of the muscles of stomach is lost. It is due to retention of fluid in the stomach, severe vomiting and diarrhoea); ***Istirkha' al- Maq'ad*** (Flaccidity of the anal canal due to paresis and paralysis of sphincter muscles which leads to involuntary expulsion of stool and gas from the anus); ***Istirkha' al-Mathana*** (Flaccidity/paresis of muscles attached to urinary bladder with or without injury of bladder followed by incontinence of urine); ***Juhuz Istirkha'i*** (Protrusion of eye ball due to paresis of eye muscles and ligaments attached to it); ***Istirkha' al-Jafn*** (The drooping of upper eyelids due to paralysis of eye muscles or congenitally due to the defect of the muscles of eye); ***Istirkha' al-Lisan*** (A condition where the tongue becomes flaccid, there is increased salivation and patient feels difficulty in speaking); ***Istirkha' al-Litha*** (Flaccidity of the gums in which they become spongy); ***Istirkha' al-Safan*** (Flaccidity of scrotum); ***Istirkha' al-Qadib*** (It is the flaccidity of penis) [5, 12].

## 3. Aetiology (Asbab)

1. X-linked recessive Disorder
2. Obstruction occurs in asab (nerves)
3. Excess rutoobat in azlat

4. Sue mizaj barid mufrad

5. Tafarruq wa ittesal and iltehab

5. Disturbance in *hadm udwi*- dystrophy comes from Latin and Greek roots meaning faulty or inadequate nutrition (Nuqs Taghzhia) [10, 11, 13].

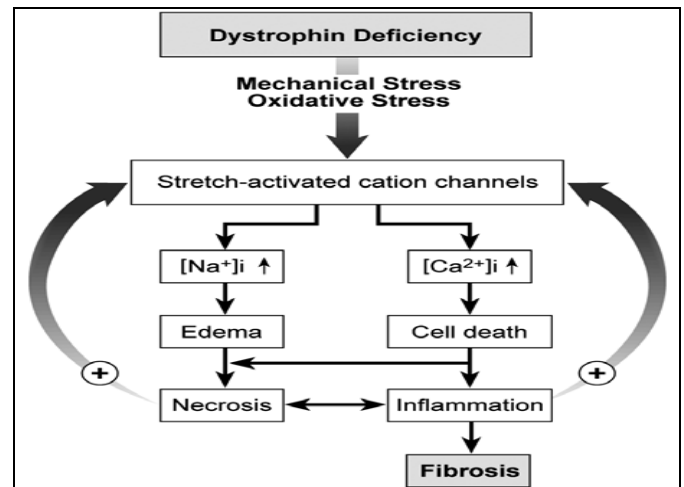


Fig 1: Flowchart: from dystrophin deficiency to fibrosis

## 4. Diagnosis (Tashkhees)

To determine the humoral balance of the body, the most distinctive method of diagnosis is *Nabz* (Pulse). Other methods of diagnosis include examination of *Baul* (Urine) and *Baraz* (Stool). Besides, modern tools and techniques of diagnosis are also used by Unani physicians these days, e.g. X-ray, Ultrasound, ECG, MRI and Pathological investigations [5, 14]. MD is diagnosed by muscle biopsy, DNA testing, Multiplex PCR, electromyogram, nerve conduction velocity and blood enzyme CK [15, 16].

## 5. Types of Treatment

Unani medicine therapy attempts to use simple and natural means to cure diseases. The theory is based on the elements (fire, water, earth and air) present in the human body. According to the followers of Unani medicine, it is important to maintain a balance of these elements in our body for good health. Based on the cause and nature of disease, Unani Medicine therapy attempt to use simple and natural means to cure diseases. The four key methods of treatment include; *Ilaj-Bil-Tadbeer* (Regimenal Therapy); *Ilaj-Bil-Ghiza* (Dietotherapy); *Ilaj-Bil-Dawa* (Pharmacotherapy) and *Ilaj-Bil-Yad* (Surgery) [17].

### 5.1 Ilaj-Bil-Tadbeer (Regimenal Therapy)

Tadbeer in Arabic means regimen (systemic plan) and *Ilaj-Bil-Tadbeer* therefore, means treatment through regimen. It is a method through which care of the sick person and maintenance of general health is performed with the help of certain procedures using various tools and equipments [18].

Different types of regimes which are beneficial for muscular dystrophy patients viz; *dalk* (massage therapy), *riyazat* (exercise). *Nutool* (douching), *abzan* (sitz bath), *tamreekh*, *hammam* (Turkish bath).

### For Dalk (Massage)

*Dalk* has been described under the headings of *riyazat* (exercise), because it performs the same function as *riyazat*. This therapy evacuates the waste materials (sodium and calcium which is responsible for ATP depletion), liquefied the

viscid materials, produces energy and strength the muscles and also acts as antifibrotic effect on the affected muscular tissues. It helps in mobility of soft tissue, reduce the muscle spasm and pain, enhance the circulation, and reduce the oedema which is responsible for inflammation and necrosis. For this *Roghan Sosan, Rogan Nargish, Roghan Qust, Roghan Azaraqui, Roghan Malankangi* [10, 19].

#### **Riyazat Mu'tadila (Moderate exercise)**

Voluntary movements entailing deep and rapid respiration. The exercise, moderate in all aspects such as duration, strength, quantity etc [20]. Submaximum, aerobic exercise/activity is recommended by some clinicians, especially early in the course of the disease when residual strength is higher, whereas others emphasise avoidance of overexertion and overwork weakness. To avoid disuse atrophy and other secondary complications of inactivity, it is necessary that all boys who are ambulatory or in the early non-ambulatory stage participate in regular submaximum (gentle) functional strengthening/activity, including a combination of swimming-pool exercises and recreation-based exercises in the community [9].

#### **For Nutool (Douching)**

A specialized method of pouring of medicated oil or herbal decoction over the body is called *nutool*. Which help as tahleele warm (anti-inflammatory), imalae mawad and tukoobate uzoo. For this, Sea water, *Mirzanjosh, Fanjkusht, Gule Baboona* etc are used.

#### **For Aabzan (Sitz Bath)**

This regims activates the internal organs of the abdomen and pelvis by increasing blood circulation to the surfaces and reduces congestion of muscle and inflammation. For this Olive oil and *Salab, Baranjasif, Shora Qalmi* used.

#### **For Tamreekh (Oil immersion)**

*Roghan Arand, Roghan Jund Baidaster, Farfiyoon, Aqarqarha, Hinzal, Sosan.*

#### **For Zimad (liniment/Paste)**

It helps in increasing circulation. For this *Zimad Khardal, Zimad Shitrij,*

#### **For Tareeqe (Diaphoresis)**

This is method of the istifragh in which cleaning and evacuation of morbid material through the skin. Diaphoresis with the help of exercise, steam bath, hot diet and warm cloth, *hammam yabis, bukhoor, inkebab.*

#### **For Amle Kai (Cauterization)**

With the help of cauterize extra muscle (pseudohypertrophy) is removed or to strength the organ or change in temperament or abnormal organ [10].

#### **For Hijama (Cupping)**

Wet cupping eliminate the morbid material from affected side by letting down the sufficient quantity of blood which relieving pain, inflammation and oedema and fresh blood circulation occurs which is responsible for transportation of ruh.

#### **Tadabir-i-Nafas (Respiratory Care)**

The aim of respiratory care is to allow timely prevention and

management of complications. A structured, proactive approach to respiratory management that includes use of assisted cough and nocturnal ventilation has been shown to prolong. Patients with DMD are at risk of respiratory complications as their condition deteriorates due to progressive loss of respiratory muscle strength survival [21, 22].

#### **5.2 Ilaj-Bil-Ghiza (Dietotherapy)**

Unani Medicine has great importance on treating certain disease by administrating specific diet or by regulating the quality and quantity of food. So, it is used in Unani Medicine as a key line of treatment [17, 23]. Diet should be selecting that types which are ghizae lateef, jaiyyadul kaimus and sariul hazm. As per western perspective diet for muscular dystrophy high dietary intake of lean meat, seafood (Tahlab, Sartan, Lulu, Marjan, Busd), pulses, olive oil, leafy vegetables, bell peppers, and fruits like blueberry and cherry is advised in the light of antioxidant, immunomodulator, nootropic, organospecific and vitalizer [24].

#### **5.3 Ilaj-Bil-Dawa (Pharmacotherapy)**

Treatment through drug is recommended in conditions when health by natural ways and means like change in lifestyle does not work. The drugs are classified into groups according to their origin i.e. *Nabati* (plant origin), *Haiwani* (an animal origin) and *Ma'dni Advia* (mineral origin) [25]. Drugs used may be in single or compound formulation.

Some single drugs are beneficial like Baad Aaward (*Fagonia arabica*), Qust (*Sausarrea lappa*), Khulanjan (*Alpinia galanga*), Aqarqarha (*Anacyclus pyrethrum*), Ood Salib (*Paonia officinalis*), Azaraqui (*Strychnous nuxvomica*), Darchini (*Cinnamom zeylanicum*), Bladur (*Anacyclus cardium*), Halela (*Terminelia chebula*), Balela (*Terminelia belerica*), Amla (*Emblica officinalis*), Kalonji (*Nigella sativa*), Gilo (*Tinospora cordifolia*), Asgandh (*Withania somnifera*), Tahlab (*Spirulina platensis/maxima*), Satavar (*Asparagus racemosus*), Musli Safaid (*Chlorophytum borivilianum*), Waj (*Acorus calamus*), Sanbhalu (*Vitex negundo*), Haldi (*Curcuma longa*), Khar khasak (*Tribulus teristerris*) etc. And some compound formulations are *Itriphal Sagheer, Majoon Flasaqa, Majoon Atyab, Majoon Bladur, Habe Azaraqui, Tiryaqe Arba, Tiryaqe Kabir, Jawarish Jalinus, Khameera Marwareed, Majoon Khabsul Hadeed* etc, are beneficial to reduced the complication of MD and helpful in order to trigger protective mechanisms and to delay catabolic and tissue degrading pathways, it may be due to antioxidant, immunomodulator, neuroprotective, hepatoprotective, anti-inflammatory and vitalizing (Iksir-e-Badan/Rasayana/Elixir of life) effect [10, 26-32].

#### **5.4 Ilaj-Bil-Yad (Surgery)**

Unani Attiba (Physician) was innovator in *Jarahat* (surgery) and had elaborated their own instruments and techniques. They practiced surgery and wrote many amazing books on the subject like, *Kitab-al-Tasreef* by Abul Qasim Zahravi (Abulcasias), *Kitab-al-Umda Fil Jarahat* by Ibn-al-Quf-Masihi, *Kamilus San'a* by Ali Ibn Abbas Majoosi etc [33]. No unequivocal situations exist in which lower-limb contracture surgery is invariably indicated. If lower-limb contractures are present despite range-of-motion exercises and splinting, there are certain scenarios in which surgery can be considered [34].

#### **6. Conclusion**

There is no specific treatment for any of the forms of muscular

dystrophy. Though muscular dystrophy have mostly been loomed (approached) as a dysfunction of skeletal myofibres, the additional modified occurs in the connective tissue. Most of the time inflammation, myofibroblast proliferation, tissue contracture and fibrosis occur. Muscular restoration is partial due to the limited quantity and capacity of satellite cells. Hence, a proactive and multimodal approach (Antifibrotic therapy, Diet therapy, Drug therapy and Regimenal therapy) is essential in order to trigger protective mechanisms and to delay catabolic and tissue degrading pathways. In Unani classical text directly MD word is not defined by Arabian scholar but Istirkha (A condition where muscles of an organ or the whole body become flaccid and are not able to perform function) term is mentioned which sign and symptoms are almost similar to MD (muscular dystrophy, a term first coined by Erb in 1891). On the basis of literature survey from Unani classical text and from web source it this review indicates treatment on the basis of Istirkha will be beneficial for the patients of muscular dystrophy.

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