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Review Article

THE CONCEPT AND MANAGEMENT OF WAJAUL MAFASIL IN UNANI MEDICINE

ZEHRA ZAIDI*

Department of Ain, Uzun, Anaf WA Halaq, School of Unani Medical Education and Research, Jamia Hamdard, New Delhi, India.
Email: zehra.zaidi@jamiahamdard.ac.in

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ABSTRACT

More than 54 million Americans suffer from some form of arthritis and 23.7 million are limited in their usual activity, primarily due to pain. The study aims to highlight the concept of Arthralgia and the potential of its management in Unani Medicines. Osteoarthritis (OA) is a slowly progressive condition with a variable prognosis. In general, predicting the prognosis in patients with OA is difficult. However, pharmacological therapy can be associated with serious side effects and high costs. Therefore, alternative therapies have been under investigation. Herbal medications have shown the potential for safe and effective management of arthritis. The Unani Medicine is a rich source of classical knowledge on arthritis. OA has been mentioned as *Wajaul Mafasil Balghami/Saudawi*, and Unani Physicians has been treating this disease successfully with mostly single herbal drugs and their compound formulations for centuries. It has been revealed through animal, *in vitro*, and clinical studies that most of the single and compound Unani formulations are safe, without any side effects, and effective in OA, especially gout and rheumatoid arthritis. There is a need to conduct studies at Phase III level after analyzing 2nd Phase clinical studies of Unani medicine, so a promising safe, economic, and effective treatment can be provided to the ailing society for OA.

Keywords: *Wajaul Mafasil*, Arthralgia, Osteoarthritis, Unani Medicine.

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INTRODUCTION

Osteoarthritis (OA) is a long-term chronic disease characterized by the deterioration of the cartilage in joints which results in bones rubbing together and creating stiffness, pain, and impaired movement. The disease most commonly affects the joints in the knees, hands, feet, and spine and is relatively less common in the shoulder and hip joints. While OA is related to aging, it is also associated with a variety of both modifiable and non-modifiable risk factors, including obesity, lack of exercise, genetic predisposition, bone density, occupational injury, trauma, and gender.

OA is the single most common cause of disability in older adults. The prevalence of OA is increasing due to population aging and an increase in related factors such as obesity. According to the United Nations, by 2050 people aged over 60 will account for more than 20% of the world's population [1].

According to a recent analytical study, the global prevalence of knee OA is 16.0% (95% CI, 14.3–17.8%) and the incidence is 95% CI, 106–331 (203 per 10,000 person-years) [2].

By conservative estimates (between- 2013 and 2015), about 54.4 million adults in the U.S. (22.7% of all adults) had doctor-diagnosed arthritis. 23.7 million (43.5% of those with arthritis) reported activity limitations due to their arthritis. There was an increase of about 20% in the number of adults with arthritis who reported activity limitations since 2002 [3].

In a recent study, it was concluded that the overall prevalence of knee OA is 35.7% (females: 44.5% Males: 23.1%). Age more than 60 years, female gender, history of trauma, and BMI >30 were found to be significantly associated with higher odds of OA knee ($p<0.05$) in Kashmir, India [4].

There is no cure for OA, and no therapy is known to prevent or retard the degenerative biological process in articular cartilage. Thus, the treatment of OA is focused primarily on relieving symptoms and improving function.

TREATMENT

The treatment of arthritis includes non-pharmacologic measures, pharmacologic measures, surgery, and protecting cartilage (disease modifications) [5].

Non-pharmacological measures

It includes patient education, physical and occupational therapy assessment and interventions, exercise, weight loss, and dietary measures.

Pharmacologic therapy

NSAIDs are useful in OA mostly for their analgesic effects. In a review report it was concluded that concerning pain, results showed that NSAIDs provided statistically significant benefits as early as week 2 (standardized mean difference −0.43, 95% CI, −0.48, −0.38) and lasting for up to 26 weeks, however, the effects decreased over time and lost clinical significance by 8 weeks. The incidence of minor GI and CV AEs consistently rose, reaching significance as early as 4 weeks, unfortunately [6].

NSAIDs are associated with hypertension, fluid retention, and renal compromise. They are also associated with an increased risk of gastric ulcers and bleeding, particularly in patients with a history of gastrointestinal disease, those on concomitant steroids or anticoagulants, and those older than 65 years [7].

The other therapeutic agent is cyclooxygenase-2 (COX-2)-specific NSAID. There is an increased risk of UGIT AEs, especially abdominal pain cardiovascular AEs with COX-2 inhibitors, namely, hypertension, heart failure, and edema [8]. Celecoxib poses a lesser risk of serious gastrointestinal complications than nonselective COX inhibitors [9].

Intra-articular corticosteroid injections may be useful in treating selected joints, particularly during exacerbations, and injections in a symptomatic knee every 3 months may be a safe and effective means of reducing pain and improving function over longer periods [10].

Intra-articular hyaluronic acid derivatives can be given in a series of 3–5 weekly injections. In a recent study, it was concluded that IAHA is efficacious by 4 weeks, reaches its peak effectiveness at 8 weeks, and exerts a residual detectable at 24 weeks [11].

Protecting cartilage (disease modification)
Therapies with the potential to prevent or retard the progression of articular cartilage breakdown have received a great deal of attention in recent years.

Chondroprotective agents include tetracyclines, protease inhibitors, and antiresorptive agents such as bisophosphonates, calcitonin, glycosaminoglycan compounds, growth factors, and cytokine inhibitors. Oral glucosamine and chondroitin sulfate have been promoted as health food supplements to improve cartilage [12].

Glucosamine has low and rare adverse effects, it represents a viable option for the management of OA (as a symptomatic slow-acting drug) but its administration should be discontinued if no significant effect is reported by the patient [13].

Some concerns are raised on the use of oral glucosamine and chondroitin sulfate in Diabetic Mellitus patients but clinical studies, including three using oral glucosamine, have provided mixed evidence about the effect of exogenous glucosamine on glucose metabolism in humans [14].

Surgery
In patients with badly damaged knees and hips, total joint replacement is an effective option. Almost all patients experience significant pain relief, and some have improved their range of motion. Joint loosening and infection are potential late complications in prosthetic joints but are uncommon [5].

PROGNOSIS

OA is a slowly progressive condition with a variable prognosis. In general, predicting the prognosis in patients with OA is difficult. Risk factors for worsening the disease include increased age, increased body mass index, proprioceptive deficit, and pain intensity, whereas greater muscle strength, mental health, self-efficacy, social support, and aerobic exercise are associated with better outcomes [5].

Limitations in the conventional medical management of OA indicate a real need for safe and effective treatment of OA patients. Herbal medicines may provide a solution to this problem [15].

However, pharmacological therapy can be associated with serious side effects and high costs. Therefore, alternative therapies have been under investigation. Herbal medications have shown the potential for safe and effective management of arthritis.

With the growing interest in herbal therapies among persons with rheumatoid arthritis (RA), there exists a need for investigation into their safety and efficacy [16].

Unani System of Medicine has a treasure of medical knowledge gained through the practice of medicine during its thousands of year's journey. USM treats the disease with a holistic approach with mostly safe and time-tested herbal, mineral, and animal origin drugs. I have summarized this review explaining the concept and management of OA as an attempt to provide economic, safe, and effective alternate treatment of OA in Unani Medicine.

***WAJAUL MAFASIL* IN UNANI MEDICINE**

Wajaul Mafasil is an Arabic term composed of *Waja* meaning pain and *Mafasil* meaning joints. Although *Wajaul Mafasil* is a symptom of many underlying joint diseases, it has been discussed widely in Unani medical literature as a disease entity and it is still in use vaguely for arthritis in general. For Arthritis the actual terminology in USM is *Iltehabe Mafasil.*

Historical background
Father of Medicine Hippocrates (460 BC) was the first person to document the *Wajaul Mafasil* in his compendium titled as - *Kitabul Mafasil*. The famous Unani Physician Dioscorides (30–90 AD) also wrote on *Wajaul Mafasil* in his famous book - *Kitabul Hashaish* (De Materia Medica-70AD). Later on Rufus (117AD) also wrote a compendium on *Wajaul Mafasil* known as *Kitab Aujawul Mafasil*. Jalinoos (Galen 130 AD) has mentioned Wajaul *Mafasil* in his book *Kitabul Ilaj Wal Amraz* [17,18]. Razi has described in detail Wajaul Mafasil in *Kiatabul Hawi* vol.11 and also wrote a book on Wajaul Mafasil, namely, *Kitab Fee Alal-al Mafasil Wa Niqris Wa Irqunnisa* [17], Maseehi described *Wajaul Mafasil* in *Kitabul Maat* in the book number 95 [19].

Definition
Wajaul Mafasil is the term used for pain, inflammation, accumulation, and deposition of morbid matters and other disorders of joints. It also includes *Niqris* (Gout), *Irqunnisa* (Sciatica), and other disorders of joints [20,21].

Samarqandi stated that *Wajaul Mafasil* is the pain and inflammation in organs of joints, that is, *Ghazroof* (Cartilage), *Autar* (Tendons), *Ribatat* (Ligaments), *Azlat* (Muscles), and *Ghishae Zulali* (Synovial Membrane) [20,22].

ASBAB (ETIOLOGY)

Causes of *Wajaul Mafasil* are as follows [20].

***Asbabe Faila* (causative factors)**
The factors which affect the joints directly; producing pathological changes and joint pain. These are further subdivided into the following.
A. *Sue Mizaj*
B. *Ehtebase Madda*

A. *Sue Mizaj* (deranged temperament)
Kaifiyat (quality or physical properties) of humors is altered. This may be of two types.

a. *Sazaj/Sada* (Simple)
This may be of four types.
   i. *Sue Mizaj Har Sada* (Simple Hot derangement)
   ii. *Sue Mizaj Barid Sada* (Simple Cold derangement)
   iii. *Sue Mizaj Ratab Sada* (Simple Wet derangement)
   iv. *Sue Mizaj Yaabis Sada* (Simple Dry derangement).
b. *Sue Mizaj Maddi* (Deranged Temperament with Morbid Material) *kaifiyat* (quality) and *kammiyat* (quantity) of humors is altered. This may be of four types.
   i. *Sue Mizaj Damwi* (Sanguineous derangement)
   ii. *Sue Mizaj Safrawi* (Bilious derangement)
   iii. *Sue Mizaj Balghami* (Phlegmatous derangement)
   iv. *Sue Mizaj Saudawi* (Black Bilious derangement).

Wajaul Mafasil Maddi may be due to the following factors.
   i. *Sue Mizaj Haar Multahib* (Hot Inflammatory deranged temperament)
   ii. *Sue Mizaj Barid Munjamid* (Cold freezing deranged temperament)
   iii. *Sue Mizaj Yabis Munqabiz* (Dry constrictive deranged temperament) [20,23-26].

B. *Ehtebase Madda* (Retention of Morbid Matters)

Ibne Sina postulated the theory that when raw humors are accumulated in the body and are not excreted out by natural means or induced means they got accumulated in joints and causes pathological changes in joints and results in *Wajaul Mafasil*. Accumulated raw humors may be *Dam, Safra, Balgham*, or *Sauda*. He also mentioned that *Reeh* (Gas) may be accumulated inside joints causing *Wajaul Mafasil* [20,23,24].

***Asbabe Munfaila* (predisposing factors)**
These factors are not directly responsible for *Wajaul Mafasil*, but they act indirectly in the pathogenesis of *Wajaul Mafasil* by making the joints more prone to get affected by the *Asbabe Faila* as described above. According to Ibne Sina and others, these may be as follows [20].

i. Irregular diet
ii. Taking water on an empty stomach
iii. Incomplete digestion
iv. Intercourse after taking food
v. Stopping of habitual *Istifragh*
vi. Lack of exercise
vii. Alcoholism
viii. Excessive Intercourse
ix. Excessive use of joints
x. Treatment of Intestinal colic in the wrong way causing diversion of morbid matters to joints
xi. Mental/Psychological stress
xii. Genetic predisposition
xiii. Sex - Males are more prone to be affected than females and eunuchs are usually unaffected by *Wajaul Mafasil*
xiv. Season - *Khareef* (March-June) followed by *Rabee* (July-September) are favorable seasons for *Wajaul Mafasil*.

These factors lead to the formation of *Fasid Mawad* (Morbid humors) [20,22-24,26].

CLASSIFICATION

According to the severity of symptoms

1. *Wajaul Mafasil Had* (Acute Arthralgia)

Severe symptoms develop within a very short duration.

2. *Wajaul Mafasil Muzmin* (Chronic Arthralgia)

The symptoms are mild with a longer duration [22,24].

According to the temperament of the disease [22,26-32]

1. *Haar* (Hot)

Temperament of disease is hot as we can feel hotness on palpation of the affected joint. It has been further divided into the following.

i. *Wajaul Mafasil Damwi*
ii. *Wajaul Mafasil Safrawi*.

2. *Barid* (Cold)

Temperament of the disease is cold as on palpation, the affected joint is felt cold. It has been further divided into the following [24].

i. *Wajaul Mafasil Balghami*
ii. *Wajaul Mafasil Saudawi.*

According to the involvement of one or more humor in Wajaul Mafasil [22]

1. *Wajaul Mafasil Mufrad* (Single)

Only one humor is accumulated in joint.

2. *Wajaul Mafasil Murakkab* (More than One)

There may be an accumulation of more than one humor in the joint.

According to the type of morbid matter accumulated in joints [20,26]

1. *Wajaul Mafasil Damwi*
2. *Wajaul Mafasil Safrawi*
3. *Wajaul Mafasil Balghami*
4. *Wajaul Mafasil Saudawi*
5. *Wajaul Mafasil Reehi*
6. *Wajaul Mafasil Ufooni* (Infective) [20]

According to the presence of swelling

Akbar Arzani has classified *Wajaul Mafasil into* the following.

1. *Dard Ba Warm* (*Wajaul Mafasil* with swelling)
2. *Dard Be Warm* (*Wajaul Mafasil* without swelling) [31].

***MAHIYATUL MARZ* (PATHOGENESIS)**

The pathological changes in the joints take place due to derangement of humors which accelerate the process of accumulation of *Maddae Fasida* (altered humors) in the joint space. Ibne Sina further states that;

i. Every movement results in the release of heat. The heat attracts *Ratoobat* (Liquid) which is *Maddae Fasida* in this case
ii. The cavity in the joint gives space for the accumulation of *Ratoobat*
iii. Joints consist of cold temperament organs such as bone and cartilage which are unable to metabolize accumulated altered humors.

The derangement of the temperament of humors may be simple causing *Wajaul Mafasil Sada* to result in functional disturbance of joints. In the case of *Sue Mizaj Maddi*, there will be an organic disturbance and quantitative changes in the joints [20].

***ALAMATE MARZ* (CLINICAL FEATURES)**

***Wajaul Mafasil Damwi* (sanguinous)**

- It is a common type of *Wajaul Mafasil*
- The onset is insidious with severe symptoms
- Pain in joint on movement leading to restricted movements
- Swelling of joints
- Tenderness of joints
- The skin on the affected joint is reddish
- The affected joint is hot on palpation
- There will be relief in symptoms on exposure to cold and on taking cold temperament things
- History of exposure to the factors responsible for *Sue Mizaj Damwi*.

***Wajaul Mafasil Safrawi* (billious)**

- It is a less common type of *Wajaul Mafasil*
- The onset is insidious with severe symptoms
- Pain in joint on movement resulting in restricted movements
- There may be complaints of itching on the affected joint and all over the body
- The swelling of joints is lesser than *Damwi*
- Tenderness of joints
- The skin on the affected joint is yellowish
- The affected joint is hot on palpation
- There is relief in symptoms on exposure to cold and on taking cold temperament things
- There may be a history of exposure to the factors responsible for *Sue Mizaj Safrawi*.

***Wajaul Mafasil Balghami* (phlegmatous)**

- It is the most common type of *Wajaul Mafasil*
- The onset is slow with mild to moderate symptoms
- Pain increases on movement
- There may be mild swelling of the affected joint
- Mild tenderness on the affected joint
- The skin on the affected joint is whitish and soft
- The affected joint is cold on palpation
- There will be relief in symptoms on exposure to heat and on taking hot temperament things
- There may be a history of exposure to the factors responsible for *Sue Mizaj Balghami.*

***Wajaul Mafasil Saudawi* (black bilious)**

- It is a rare type of *Wajaul Mafasil*
- The onset is very slow and develops at the last stage of the above-mentioned types due to metabolic conversion of other humors into *Sauda* with mild to moderate symptoms
- Pain increases on movement
- Mild tenderness on the affected joint
- The skin on the affected joint is black and dry
- The affected joint is hard on palpation
- There will be relief in symptoms on exposure to cold and on taking cold and wet temperament things
- There may be a history of exposure to the factors responsible for *Sue Mizaj Saudawi*.

***Wajaul Mafasil Reehi* (gasious)**

- The onset is slow.
- Pain in joints is shifting in nature [20-31].

Specific types of *Wajaul Mafasil* According to the joint affected.

1. *Irqunnisa* (Sciatic Pain)
2. *Niqris* (Phalangeal Arthritis/Gout)
3. *Wajaul Warik* (Pelvic Pain)
4. *Wajaul Khasira* (Hip Joint Pain)
5. *Wajaul Qutn* (Low Backache/Lumbago)
6. *Wajaul Rakba* (Knee Joint Pain)
7. *Wajaul Zahr* (Backache)
8. *Wajaul Mafasil Hudari* (RA)

It is chronic and affects multiple joints of fingers, and wrist, it results in disfigurement of palm.

9. *Wajaul Aqab* (Heel Pain)
10. *Salabat WA Tahajjur Mafasil* (Osteosis/Calcification of Joint)

The affected joint becomes stiff, with no movement and feeling of hardness on palpation of the joint [23].

MANAGEMENT OF *WAJAUL MAFASIL*

1. *Taskeen-e-Waja* (Relieving of pain)
2. *Tahleel-e-Warm* (Resolution of Swelling)
3. *Tanqiya Mawade Fasida* (Cleansing and elimination of morbid matter)
4. *Rida-e-Maadda* (Diversion of morbid matter)
   When it is not easy to perform *Istifragh* (Elimination) as mentioned above at S.No.3 than *Rida-e-Maadda* is recommended.
5. *Tadeel Sue Mizaj* (Correction of deranged temperament)
6. *Taqwiyate Mafasil WA Aasab* (Strengthening of Joint and Nerves)

***Taskeen-e-Waja* (relieving of pain)**

For immediate relief *musakkinat* (Analgesics) is given to patients for;

(i) *Muqami Istemal* (Local application) or (ii) *Khurdani Istemal* (Systemic use) or both.

***Tahleel-e-Warm* (resolution of swelling)**

For this purpose *Mohallile Auram* (Resolvents/Anti-inflammatory) These drugs are prescribed to patients for;

(i) *Muqami Istemal* (Topical application) or (ii) *Khurdani Istemal* (Systemic use) or both.

***Tanqiya Mawade Fasida* (cleansing and elimination of morbid matter)**

For this purpose, various methods are adopted as per the requirement of the situation as given below.

i. *Idrare Baul* (Diuresis)

It is advised in *Wajaul Mafasil Muzmin.*

ii. Qai (Emesis)
   It is helpful in *Wajaul Warik* [27].
iii. *Munzij Mus-hil Therapy* (Concoctive & Purgative)
   This is indicated in *Wajaul Mafasil Balghami*, *Safrawi, and Saudawi*, *Wajaul Mafasil Muzmin.*
iv. *Hijamah* (Cupping)
   For elimination of morbid matter, *Hijama bil shurt* (Wet Cupping) is applied. Sometimes it is applied for the relief of pain also [21].
v. *Fasd* (Venesection)

For *Wajaul Mafasil Damwi*, *Fasd* of the opposite side in ankle and foot [3,12] is recommended followed by *Qai* [11] or *Is-hal* [24,27].

***Rida-e-Maadda* (diversion of morbid matter)**

When it is not possible to perform *Istifragh* (Elimination) then *Rida-e-maadda* is recommended. *Amale Kai* (Cauterization) is one of the methods recommended for this purpose [20].

***Ta'deel Sue Mizaj* (correction of deranged temperament)**

It is achieved by prescribing medicines of *mukhalif kaifiyat/Mizaj* (opposite temperament) of the predominately affecting humor. It is achieved with the use of *Munzijat* (Concotives), *Moaddelat* (Alteratives), *Mus-hilat* (Purgatives), *Mudirrat* (Diuretics), and *Mullaiyenat* (Laxatives).

***Taqwiyate Mafasil WA Aasab* (strengthening of joint and nerves)**

i. *Taqwiyate Aam* (General Body Strengthening)
ii. *Taqwiyate Mafasil*
iii. *Riyazat* (Exercise)

Other measure

Rest to the patient and affected joint [20,23,24,27,29,30].

DRUGS FOR THE TREATMENT OF WAJAUL MAFASIL

Single drugs

Mainly *Musakkinat-e Alam* (Analgesics), *Murakkhiyat* (Muscle relaxant), and *Mohallilat* (Anti-inflammatory) drugs are prescribed as single or compound formulations for systemic or local use. Single drugs are Suranjan Shirin (*Colchicum autumnale*), Suranjan Talkh, (*Colchicum luteum*), Gule Babuna (*Matricaria chamomile*), Gule Surkh (*Rosa damascena*), Asgandh Nagori (*Withania somnifera*), Ushba Maghribi (*Smilex aristolochiifolia*), Chob Chini (*Smilax china*), Zanjabil (*Zingiber officinale*), Muqil/Gugal (*Commiphora mukul*), etc. [33-37].

Compound formulations

For oral medication

I. Sufoof (Powders)
   Sufoof-e-Chobchini [38], Sufoof-e-Suranjan, Sufoof-e-Suranjan Zafrani [39].
II. Hab (Pills)
   Habbe Asgandh, Habbe Gul-e-Aakh [38], Habbe Azaraqi, Habbe Suranjan [38,39].
III. Majoon (Paste)
   Majoon Chobchini Ba Nuskha Khas, Majoon Sowteera [38], Majoon Asle Baladur. [39] Majoon Azaraqi, Majoon Chobchini, Majoon Falasifa, Majoon Jograj Gugal, Majoon Suranjan, Majoon Lana, Majoon Ushba, Majoon Talkh [38,39].
IV. Kushta (Calx)
   Kushta-e-Gaudanti [39].
V. Miscellaneous Formulations

Tiryaq-e-Arba, Arq-e-Ajeeb (used as local application as well as orally) [34].

For local/topical application

Raughan (Oil): Raughan-e-Auraq, Raughan-e-Bed Anjeer, Raughan-e-Gul-e-Aakh, Raughan-e-Qust, Raughan-e-Mastagi, Raughan-e-Sarshaf, Raughan-e-Shifa [38], Raughan-e-Babuna Qawi Raughan-e-Banafsha, Raughan-e-Darchini, Raughan-e-Jauz Buwa,Raughan-e-Jauz Hindi, Raughan-e-Malkangni, Raughan-e-Sudab, Raughan-e- Seer, Raughan-e-Suranjan, and Raughan-e Zaitoon [39] Raughan-e-Azaraqi, Raughan-e-Babuna, Raughan-e- Chahar Barg, Raughan-e-Haft-e-Barg, Raughan-e-Mom, Raughan-e-Surkh [38,39].

RECENT RESEARCHES

Single drugs

Suranjan Shirin (C. autumnale)

Suranjan Talkh and Suranjan Shirin have been mentioned in classical texts of Unani Medicine for treatment of *Wajaul Mafasil* but the Talkh variety has been advised for external use only due to its toxicity in humans [33]. This fact has been proved by the recent research as HPLC profiling conclusively distinguished two important Unani drugs, namely, Suranjan Shirin (*C. autumnale*) and Suranjan Talkh (*C. luteum*). Suranjan Talkh contains high alkaloid (Colchicine) contents (0.66%) in comparison to Suranjan Shirin (0.33%), so the use of Suranjan Shirin by Unani Physicians in human beings for medicinal purposes is due to its low toxicity [40].

In a comparative randomized placebo-controlled study of 100 patients with RA, the patients were allocated to the two groups. In Group A,

patients were given Sufoof Suranjan (*C. luteum*) 2 g BD and in Group B, a placebo was given similarly. In Group A, CRP became negative but titter of the Rh factor reduced to a lower level after treatment of 3 months with statistically significant effect in signs and symptoms of RA [41].

Gule Babuna (M. chamomile)

Chamomile contains several phenolic compounds such as apigenin, quercetin, patuletin, luteolin, and glucosides. These compounds show anti-inflammatory action by reducing cytokines and PGE2, which play a role in the pathogenesis of arthritis [42].

In a clinical trial, it was found that daily consumption of 6 g of chamomile tea was associated with a reduction in the tenderness of joints and erythrocyte sedimentation rate compared to placebo for RA patients [43].

Chamomile has been placed on the FDA's "generally recognized as safe" herbs list [44].

Gule Surkh (R. damascena)

In an animal study of the aqua distillate of R. damascena Mill flower, it was concluded that Aqua distillate of flower has significant analgesic and anti-inflammatory activity at doses of 250 mg/kg and 500 mg/kg [45].

Asgandh (Withania somnifera)

Crude ethanol extract of *W. somnifera* was studied on peripheral blood mononuclear cells of normal individuals and RA patients and synovial fluid mononuclear cells of RA patients *in vitro*. It has been found to inhibit the production of TNF-α, IL-1β, and IL-12 by diminishing the activation of NF-κB and activator protein 1 signaling pathways [46].

After an *in vitro* study on aqueous extract of *W. somnifera*, it was concluded that it has a significant chondroprotective effect on damaged human OA cartilage via diminishing the gelatinase activity of collagenases [47].

In a randomized, double-blind, and placebo-controlled study of Aqueous extract of Withania root and leaves on joint pain patients, the higher dose (250 mg,) showed efficacy earlier (at 4 weeks), better physician global assessments (excellent vs. good vs. fair), and less need for rescue medication with paracetamol compared to low dose and placebo [48].

Zanjabil (Z. officinale)

In a randomized double-blind, placebo-controlled study it reported that two tablets of 500 mg of ginger daily improved VAS pain scores, significantly increased patient satisfaction, and was associated with no difference in side effects in comparison to control [49].

In a clinical study, it was found that topical ginger extract in NLC on the local application on knee joint significantly improved knee pain, stiffness, physical function, and patient global assessments following 12 weeks of knee OA treatment in comparison to 1% Diclofenac gel application [50].

In a randomized comparative study of the effect of manually prepared ginger compress and standardized ginger patch on patients of chronic OA for 7 days. It was concluded that there was reduction in scores of pain, fatigue, global effect, and functional status reduced by 48%, 49%, 40%, and 31% after 1 week of treatment. After extended period of study to 24 weeks, it was concluded that topical ginger treatment has the potential to relieve symptoms, improve the overall health, and increase independence of people with chronic OA [51].

COMPOUND FORMULATIONS

Majoon Suranjan

In an animal study; it was demonstrated that the antiarthritic efficacy of MS was comparable to aspirin in formaldehyde-induced arthritis and was superior to aspirin in turpentine oil-induced paw edema and CFA induced arthritis [52].

In another animal study, it was concluded that at therapeutic doses, the Unani medicine, MS is relatively safe. Furthermore, MS was found to be effective in decreasing the biomarkers of RA, thus providing scientific evidence in support of its traditional use in the treatment of RA [53].

Habbe Suranjan

In an animal study; it has been concluded that Habbe Suranjan is safe [54].

Habbe Suranjan and Raughan Suranjan

In a recent clinical study of Habbe Suranjan and Raughan Suranjan on Arthralgia there was a statistically significant effect on symptoms of pain and the drug was safe [55].

Polyherbal formulation of Suranjan Shirin

In a case–control, multicentric, randomized prospective, 2 arm parallel-group clinical trial, and results showed that Urinile has the potential to decrease serum uric acid level in gouty arthritis patients probably because of its antioxidant potential and xanthine oxidase inhibitory activity. Polyherbal Herbal formulation Urinile is composed of Trachyspermum ammi (Ajwain), Berberis vulgaris (Barberry), *C. autumnale* (Suranjan Shirin), and Apium graveolens (Karafs) [56].

Sufoof-e-Chobchini

In an open-label clinical trial 3.0 g powder of Sufoof-e-Chobchini and 20 ml syrup of Sharbat-e-Buzoori were given orally to patients twice a day after meals for 42 days. 5 ml oil of Raughan-e-Baboona was applied locally 2 times a day. Based on this study, it may be concluded that Unani compounds drugs Sufoof-e-Chobchini, Sharbat-e-Buzoori, and Roghan-e-Baboona possess anti-inflammatory, analgesic, and anti-arthritic activity for which significant improvement in signs, symptoms were observed. The study has also shown that the drugs are non-toxic and safe [57].

Majoon Jograj Gugal

In a single group, open clinical study, Majoon Jograj Gugal 5 g bd was given to the patients of OA for 8 weeks. After treatment there was significant reduction in the VAS Score of all symptoms of OA in comparison to baseline VAS Score of the symptoms with reduction of ESR to normal level which remained throughout the treatment period. It was concluded that the Majoon Jograj Gugal is effective in reducing the severity of disease; the drug was well tolerated and did not show any side effect [58].

Hijama Bila Shurt (dry cupping)

In a comparative study of the 30 patients of Wajaul mafasil, patients were allocated two groups randomly. In Group A of 20, patients were advised Habbe Suranjan 2 Pills BD with Hijama Bila Shurt (Cupping) for 30 min in a week for 6 weeks. In Group B of 10, patients were given Habbe Suranjan 2 Pills BD for 6 weeks only. There was a significant effect in subjective parameters of Wajaul Mafasil except for muscular weakness in Group A [59].

CONCLUSION

OA is the most commonly occurring disease in the world. It is a known fact that there is no cure for OA, and no therapy is known to prevent or retard the degenerative process in articular cartilage. There is a risk of GI disorders with the known allopathic medications. In this situation, Unani Medicine can provide an alternate safe and efficacious therapy.

The clinical features of *Wajaul Mafasil* are almost the same as described for OA in modern medicine with few exceptions. The different types of arthritis are almost the same in allopathic and Unani Medicine with some new additions which evolved due to advancement in scientific tools by understanding the disease on cellular, molecular, and biochemical levels.

OA is a slowly progressing chronic disease of joints of extremities; hence, it can be classified as *Wajaul Mafasil Balghami/Saudawi* according to Unani medicine philosophy. This type of disease is treated with hot temperament drugs which are *Mohallile Auram* (Anti-inflammatory) and *Musakkin Auja* (Analgesic) in their pharmacological action [27-29].

The animal, *in vitro*, and clinical studies of the single and compound Unani formulations show that these are safe, without any side effects, and effective as mentioned above.

The above-mentioned drugs have been proved to be anti-inflammatory and analgesic in their action and are beneficial in OA as described by Unani Medicine scholars. It has been proved that Suranjan Shirin in single and compound Unani Pharmacopoeial dosage form has been effective in arthritis and specifically effective in gout and RA. Similarly, Gule Babuna is effective in RA on internal as well on local applications. Asgandh has Chondroprotective property. Zanjabeel has been found effective in OA on internal as well as topical applications.

Till now some 2nd Phase clinical studies on single/compound drugs have been conducted with promising results as mentioned above.

We can improve the efficacy of these drugs with some modifications in traditional dosage forms as has been indicated in a recent study. In a comparative study of cumulative drug release (CDR) of classical Unani Raughan and Unani emulgel, the CDR of Unani emulgel was higher 78.82% as compared to Unani Raughan 58.64% [60].

Hence, there is a need to conduct studies at Phase III level after analyzing 2nd Phase clinical studies, so a promising safe, effective, and economic treatment can be provided to the ailing society for OA.

AUTHOR'S CONTRIBUTION

The author compiled the data and after analyzing it the article was structured.

CONFLICT OF INTEREST

The author hereby declares that there is no conflict of interests.

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