PIVOTAL ROLE OF HABB-I-GUL-I-AAKH IN THE MANAGEMENT OF WAJA 'AL ZAHR (LOW BACK PAIN): A REVIEW

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Keywords: Waja 'al Zahr, Unani Medicine, Su'-i-Mijaz, Low back pain, Habb-i-Gul-i-Aakh.

INTRODUCTION

Waja 'al Zahr (low back pain (LBP)) is the most prevalent musculoskeletal condition in developed nations. It is a common cause of disability. Almost every person has at least one episode of low back pain during their life. The LBP may be clinically present as acute and chronic pain. It is broadly represented as acute low back pain where the duration is less than one month, subacute from one to three month, and chronic if the duration is more than three month or if pain occur episodically within a six month period.¹ The LBP can arise from anterior structure-disc, muscle, ligaments, vertebral bodies; midline structures-spinal cord; posterior structure-ligaments, sacroiliac joint and facets and also by neural compression. Pain is produced by pressure on this structure from disc protrusion, osteophytes or trauma.² The LBP is the most common cause of disability in ages <45 years; LBP is the second most common cause of visiting a physician in the United States; ~1% of the United States population is disabled because of back pain.³

Waja 'al Zahr is described as a disease in which pain originates from internal and external muscles, ligaments surrounding the lumbar and lumbosacral regions. It is due to accumulation of raw balgham (phlegm). It is not a definite disease; rather it is an indication that may arise from a variety of causes and many people are not diagnosed properly.⁴ In USM, Buqrat(460 BC) was first who stated that if a balghami mizaj (phlegmatic temperament) develops numbness and coldness in his/her back and calf muscles reveals the chronic condition of disease.⁵

Etiopathogenesis

- **Congenital**: Abnormal vertebral facets, sacralisation of L5 transverse process, spondylosis or spondylolisthesis between L5 and S1 vertebrae.
- **Acquired Inflammatory**: Infective, osteomyelitis, e.g. tuberculosis, discitis, epidural abscess, non-infective or rheumatologic, spondyloarthropathies
(e.g. ankylosing spondylitis), trauma to ligaments, muscles, vertebrae or annulus fibrosus with disc prolapse.

- **Vascular:** Abdominal aortic aneurysm dissection, epidural haematoma, haemoglobinopathies
- **Neoplastic:** Primary tumours of the spine, e.g. multiple myeloma, metastatic
- **Degenerative:** Disc disease, facetarthropathy, spinal canal stenosis
- **Metabolic:** Osteoporotic vertebral fracture, Paget’s disease

**Types of low back pain:**

| Local pain | It is caused by stretching of structures that compress or irritate nerve endings (i.e. tears, stretching) located near the affected part of the back. |
| Pain referred to the back | It originates from the abdominal or pelvic region. |
| Pain of spine origin | Its cause stiffness in the back or may radiate to the lower limbs or buttock. Diseases of upper lumbar spine radiate to upper lumbar region, groin or anterior thighs. Diseases of lower lumbar spine refer pain to buttocks, posterior thighs, or rarely the calves or feet. |
| Radicular back pain | It causes radiation of pain from spine to leg in specific nerve root territory. For, e.g. coughing, sneezing, lifting heavy objects, or straining may evokes pain. |
| Pain associated with muscle spasm | It causes are diverse; accompanied by tense paraspinal muscles and abnormal posture. |

Lumbar disc diseases are the commonest cause of low backache. It usually occurs at L4-L5 or L5-S1 levels. At the age of 45 to 65 years, more than 70% people experience low back pain which inhibited them to perform daily activities. There is less association with gender regarding neck pain, although tobacco use is an associated risk factor. Physical work–related factors, such as heavy lifting, prolonged sitting and repetitive twisting, increases risk; prospective studies show that psychosocial issues, such as work as noninterest and job dissatisfaction, also are major predisposing factors.

Spinal stenosis causes narrowing of spinal canal producing neurogenic claudication, which is characterized by induction of pain by walking in back, buttock, and/or leg and relieved by sitting. On the other hand, in vascular claudication, symptoms are provoked by standing without walking. Unlike lumbar disc disease, symptoms are relieved by sitting. Focal neurologic deficits common; severe neurologic deficits (paralysis, incontinence) are rare.

Low back strain or sprain used to describe as minor, self-limited injuries associated with trauma. Most common cause of nontraumatic fracture is osteoporosis; others are osteomalacia, hyperparathyroidism, hyperthyroidism, multiple myeloma, or metastatic carcinoma.

In osteoarthritis (Spondylosis), back pain is influenced by spine movement and associated with stiffness. Increases with age, radiologic findings do not correspond with severity of pain. Osteophytes or combined disc-osteophytes may cause or contribute to central spinal canal stenosis, lateral recess stenosis, or neural foramina narrowing.

The LBP can present as acute or chronic pain. Acute LBP is one where the duration is less than 1 month, subacute from 1 to 3 months, and chronic if the duration is more than 3 months or if pain occurs episodically within a 6 months period. Mechanical causes of low backache account for the majority (90%) of cases while systemic diseases account for only 10%. Acute LBP has a favourable natural history. Most episodes resolve in a few weeks. In one-third of patients, the LBP may last for a month. Chronic LBP of more than 3 months duration is seen only in a minority.
In USM, Zakaria Razi (865-925 AD) described that Waja’ al-Mufasil (cause lies in abnormal formation of Chyme (Rūṭūbat-i-Mukhatia) due to Naqṣ (defect) in Ḥadm-i-Kabidi and Ḥadm-i-Uruği. Rūṭūbat-i-Mukhatia leads to production of abnormal humours, particularly abnormal phlegm. Other etiologies are trauma, disc prolapse and spinal abscess. The pain may also arise due to accumulation of Ghalbiz Riyāh in the lumbar and lumbosacral region. In the 12th century, Ismail Jurjani described different causative factors of low backache are Kasrat-i-Jima’, Masharikat-i-Reham, Du’fwa Laghari-i-Gurda and excessive strenuous work. In his Al-Mukhtarāt-fit, Al-Mukhtarāt-fit defined LBP as Pahlukadard caused by Su’-i-Mizaj-Har, kasrat-e-Jama, and also involvement of kidney. According to Najeebuddin Samargandi (13th Century AD), chronic Waja’ al Zahr is attributed to Su’-i-Mizaj-Sadaand Kham Bhalgham and pain will disappear by walking and exercise. Akbar Arzani (1721 AD) described Waja’ al Zahr as Dard-e-Pusht and classified it into seven types, which was based on etiology of the disease. He further stated that Waja’ al Zahr is caused by Su’-i-Mizaj-Sadaand characterized by pain without heaviness and Burudat. This pain is relieved by Hararat. Hakim Ghulam Jeelani (20th century) described different causative factors of Waja’ al Zahr, such as Takan, Laghri, excessive labour pain, etc. He stated that the main causes of Waja’ al Zahr is the khambalgham, which gets accumulated in joint spaces.

In USM, according to Avicenna, Waja (pain) is defined as sudden perception of any uncooperative agent, which is not present in the natural states of a living body.

A perception of incompatibility in the body due to abrupt changes of temperament or Su’-i-Mizaj-Mukhtalif (variable impaired temperament) and Tafārruq-i-ittiṣal (loss of continuity). The newly developed abnormal temperament becomes Har (hot) or Barid (cold) contrary to the natural temperament. The perception of such aberrant temperament is pain. According to Jalinus (Galien), Tafārruq-i-ittiṣal is the actual cause of pain, for example cold produces pain through Tafārruq-i-ittiṣal by shrinking and retracting the tissue. Waja’ al Zahr is defined as a pain, which is perceive centrally and felt in the entire lower back region affecting daily life activities. In Tibbi-Akbar, Akbar Arzani, mentioned Waja’ al Zahr as Dard-i-Pusht caused by Su’-i-Mizaj Barid Sada.

**Epidemiology**

A study conducted in 2010 revealed that the global burden of the LBP was ranked 6 causing disability-related life years and ranked 1 overall for total years lived with disability. From 1990 estimates, these numbers are increasing considerably. The number of LBP patients will increase significantly with the advent attributed to ageing of the population worldwide. In 2017, the global burden of LBP prevalence was estimated to be about 7.5% of global population, or around 577.0 million people. It has been reported that lifetime prevalence of LBP in developed countries is up to 85%, which makes this complaint second only to the common cold.

**Alamaat (Clinical features)**

In USM, clinical features of Waja ‘al Zahrare explained on the basis of causative factors:

**In case of Su’-i-Mizaj Barid Sada:**
- Feeling of coldness
- Pain without heaviness
- Pain relieved by hot regimens

**In case of Madda Balgham Kham:**
- Feeling of pain with heaviness in progressive manner
- History of eating cold temperamental foods

**In case of Riyah**
- Waja Tamaddudi (pain with tension)
- Migratory pain
- Feeling of slight heaviness
- Pain aggravates by taking those foods which produce flatulence
- Pain relieve by hot temperamental diets and oils

**In case of Hararat Sada**
- Presence of inflammation and local irritation
- Pigmented urine
- Hyperthermia
- Pain relieve by cold temperamental diets

**In case of Intela-i-Raq**
- Waja-e-Zarbani felt along the course of Raq (vertically)
- Pain increases during movement
- Feeling of heat sensation locally

**In case of Zaof-e-Gurda-wa-Laghari**
- Zaof-e-Bāh
- Dard-e-Qutn
- Bladdersymptoms

**Management in USM**

Unaniphysicians describe the treatment of Waja’al Zahr is much similar with Wajā-al-Mufāsīl (arthritis), Wajā-ul-Warq (coxalgia),HUDba and Riyah-ul-Afarsa (Kyphosis). Ilajis mainly based on ilaj-bil-dawa
pharmacotherapy), *ilaj-bil-ghiza* (Dietotherapy) and *Ilaj-bit-Tadbeer* (regimental therapy).

**Ilaj-bil-Dawa**(pharmacotherapy)
Various Unani drugs like *habb-i-hudar*, *habb-i-asgand*, *habb-i-suranjan*, *habb-i-asgand*, *Habb-i-Gul-i-Aakh*, *majoonsuranjan*, *iyarijfeeqrah*, *roghan-i-surkh*, *qurs-i-mufaasil*, *arq-i-ushbah*, *habb-i-mafaasil*, *majoonjograjgoogal*, etc. are employed in the management of Waja’al Zahr. *Habb-i-Gul-i-Aakh* is one of the famous polyherbal compound drug in the form of pills, mentioned in National Formulary of Unani Medicine for the treatment of Waja’al Zahr. Most of the physicians have reported that it is an effective and safe drug for the treatment of Wajā-al-Mufāsil. It is mainly used to treat the inflammatory diseases both acute and chronic diseases, especially in case of joint and bone ailment, such as Wajā-al-Mufāsil, Naqris(gout), Wajā-al-Warik(Hip joint osteoarthritis), etc. Unani scholars recommend *Habb-e-Gul-e-Aakh* and found that it possesses significant analgesic, anti-inflammatory and anti-arthritic activities.20

The ingredients of Unani formulation of *Habb-e-Gul-e-Aakh* as follows

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Ingredient name</th>
<th>Botanical name of ingredient and parts used</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Gul-i-Aakh</td>
<td>Calotropis procera (flowers)</td>
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<tr>
<td>2.</td>
<td>Barg-e-Bans</td>
<td>Bambosaarundinacea (leaves)</td>
</tr>
<tr>
<td>3.</td>
<td>Zanjabeel</td>
<td>Zingiber officinalis (Rhizome)</td>
</tr>
<tr>
<td>4.</td>
<td>Filfilsiyah</td>
<td>Piper nigrum Linn (fruits)</td>
</tr>
</tbody>
</table>

The ingredients of *Habb-e-Gul-e-Aakh* will be taken in equal quantity and all will be grounded to fine powder and will be made pills of size 250 mg each.21

**Scientific studies on Habb-i-Gul-i-Aakh standalone and its constituents**

- A study done by Ganga B, *et al.* showed that *Habb-i-Gul-i-Aakh* possesses significant anti-inflammatory property as it has revealed significant reduction (p<0.01) in paw oedema of test groups but less than standard. Also, it has analgesic activity as Writhing is decreased in test groups.27
- A study on standardization of *Habb-i-Gul-i-Aakh* done by Ahmad G, *et al.*, showed that it is an effective drug in the management of chronic arthritis.28
- Baig G, *et al.* study indicated that *Habb-i-Gul-i-Aakh* was safe and effective in the treatment of cervical Spondylosis.29
- A study evaluated that *Bambusaarundinacea* leaves, root, seeds and shoot are used as astringent, laxative, diuretics and its extract exhibits anti-inflammatory, antiulcer, antimicrobial and hypoglycemic activity.30
- An *in vivo* study conducted by MuniappanM and Sundararaj T demonstrated that extract of *Bambusaarundinacea* has an anti-inflammatory effect in immunologically-induced paw edema and it has also possesses anti-ulcer activity in albino rats.31
- A study done by HW Lem and AC Lee indicated that the *Zingiber officinalis* not only reduce pain but also reduces functional disability in patients with non-specific low back pain.32
- Rohini Terry *et al.* study shows that the use of *Zingiber officinalis* reduced the subjective pain.33
- A study done by Jun Soo Bang, Da Hee oh, and KyoungSoo Kim explained the anti-inflammatory and anti-arthritic effects of piperine in human interleukin stimulated fibroblast like synoviocytes and in rat arthritic models, respectively.34

**Ilaj-bil-Ghiza**(Dietotherapy)

1) IbnSina advised to take an easily digestible diet (Ghiza-e-Jamiya) in Waja’al Zahr. According to him, Hilyoon is the best diet in Waja’al Zahr.

2) According to Razi, use of *Pudina* (*Menthaarvensis* L.) is useful in Waja’al Zahr caused by Galeez Riyah.

3) In Tibb-e-Akbar, Arzanistates *Parindoka Ghosht*(flesh of birds)and *GarmMasaleh* (hot spices) should be used in case of Sue MijazBarid Sada. He further suggests that *Tagleel-e-Ghiza* is the best in cases of Waja’al Zahr due to raw phlegm. In *Imtela-e-Rag*, Aab-e-anartursh-wa-Shereen, Sharbat lemon, Sheeratukhmkhayaren and Khurfa with Sikanjabeen to be given.

4) Jurjani explain that Aab-e-Nakhud (black gram) is the best with Waj (Acoruscalamus) and Shahed (Honey).8,9,19,4,16
Ilaj-bit-Tadbeer (Regimental therapy)

1) Dalak (massage): Ibn Sina and Jurjani suggest, before application of Roghaniyat, back should be rubbed with rough clothes. For examples, Roghan-i-Gul, Roghan-i-Farfiyoon, Roghan-i-Narjeel, Roghan-i-Khuru, Roghan-i-Utrak, Roghan-i-Anjeer, Roghan-i-Qurtum Roghan-i-Habb-ul-Ghaar, Roghan-i-Suddab, Roghan-i-Raindi, Roghan-i-Farfiyon, Roghan-i-Qust, Roghan-i-Sosan, Roghan-i-Shibbit, Roghan-i-Baboona, Roghan-i-Farfiyon, Roghan-i-Narjeel, Roghan-i-Khuru, Roghan-i-Utrak, Roghan-i-Anjeer, Roghan-i-Qurtum 4,8,9,16

2) Fasd: In case of Imtela-e-Rag, Fasd of Basaleeq, Mabiz and Safin veins should be indicated to relief acute pain 4,9,10,16

3) Nutool (irrigation): Nutool should be done with Joshanda Munjiz Balgham 9,19

4) Hammam: for Tahlee Mudda. 9,19

5) Zimad (liniment): Zimad is prepared by mixing Muqil, Ushq, Hulba, Baboona, Habb-ul-Ghaar, Tukhm Alsi, Jund-baid-astar, Rogan-e-baid-injeer, Jao-Sheer, Sakbeenaj and Farfiyon. 4,8,9,16

6) Hijamat: Razi indicated that Hijamat-i-Nariya and Hijamat-bila-Shart should be very effective in Waja’ al Zahr. Ibn Sina advises Hijamat-bish-Shartas well as Hijamat-e-Nariyain LBP. 8,19

Treatment (Modern)

Acute low back pain diagnosis:
- Diagnostic triage (non-specific low back pain, radicular syndrome, specific pathology)
- History taking and physical examination
- Neurological screening is done with the help of physical examination (including straight leg raising test)
- Psychosocial factors is considered, if there is no improvement
- X-rays not useful for non-specific low back pain

Treatment of acute low back pain:
- Patients should be reassured
- Ensure patients should remain active
- Prescribe analgesics if necessary, such as paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs)
- Muscle relaxants or opioids may be given
- Bed rest should be discouraged
- Consider spinal manipulation for pain relief
- Back-specific exercises are not recommended

Chronic low back pain diagnosis:
- Diagnostic triage to exclude specific pathology and nerve root pain
- Assessment of prognostic factors, namely work related factors, psychosocial distress, depressive mood, severity of pain and functional impact, prior episodes of low back pain, extreme symptom reporting and patient’s expectations
- Imaging is not recommended unless a specific cause is strongly suspected
- Magnetic resonance imaging is best option for radicular symptoms, discitis or neoplasm
- Plain radiography is best option for structural deformities

Treatment of chronic low back pain:
- Cognitive behavior therapy
- Supervised exercise therapy
- Educational interventions and multidisciplinary (biopsychosocial) treatment are recommended
- Short term use of NSAIDs and weak opioids are permissible
- Short courses of manipulation and mobilisation, noradrenergic or noradrenergic-serotonergic antidepressants, muscle relaxants and capscicum plasters.
- Not recommended: Passive treatments like ultrasound and short wave and gabapentin.
- Generally, Invasive treatments are not recommended in chronic non-specific low back pain. 22
Investigation

- Complete blood count
- ESR
- X-ray Lumbosacral spine (AP and Lateral view)
- LFT: serum bilirubin, SGOT, SGPT, Serum, alkaline phosphate.
- KFT: blood urea and serum creatinine
- Urine routine and microscope.
- BS(F)

Additional investigations are computed tomography, magnetic resonance imaging, myelogram, bone scan, bone densitometry and single photon emission computed tomography (SPECT). The CT and MRI have significant importance in evaluating the anatomical details. The MRI is the most preferred investigations, although the CT defines the bony architecture of the spinal canal better than MRI. The MRI differentiates metastatic spinal fractures from osteoporotic lesions. Bone scan is a screening tool for the evaluation of inflammation and infection. In case of bone of osteoporosis, bone densitometry is suggested. The SPECT is performed when a bony abnormality is suspected. Biopsy is indicated in rare situations when the diagnosis of the bone pathology is not clear.

Differential Diagnosis

1. **Lumbosacral Strain:** Lumbosacral strain (LS) is the commonest among the young adults due to faulty sitting position. The characteristics of LS are spasmodic pain which increases with activity, tenderness on palpation and limited range of motion.

2. **Acute Disc Herniations or Disc Prolapsed:** Disc prolapse is often associated with neurological symptoms like altered sensation, weakness in the muscles, asymmetric reflexes. The quality of pain is sharp, shooting or burning pain, paraesthesia in leg, decreased with standing, increased with bending or sitting.

3. **Spinal Osteoarthritis:** It is one of the most common findings on plain spine radiographs of patients with low back pain encountered at the ages between 55 and 60 years.

4. **Ankylosing Spondylitis:** This is a painful stiffness condition of the spine, particularly felt in the early hours of the morning. It is more common in males, age about 15-40 years.

5. **Spinal Stenosis:** This may be caused by a combination of bony overgrowth (e.g. osteophytes formation, Paget's disease), disc protrusion or herniations, or congenital anomalies, such as shortened vertebral pedicles.

6. **Infection:** Infectious etiology of acute low back pain include osteomyelitis, septic discitis, and paraspinal or epidural abscess, whereas infectious etiologies of chronic low back pain include fungal or tuberculosis infections.

**DISCUSSION**

The main purpose of this review paper is to explore the Unanian and modern concepts of *Waja 'al Zahr* and its management with special emphasis on *Habb-i-Gul-i-Aakh*. Pain and tenderness in *Waja 'al Zahr* developed due to the accumulation of *Akhlāt-e-Fasīdā* (mainly *Ghair-tabyee-Balgham*) in the joint structures of lumbosacral region that leads to *Su'i-Mizāj* (*Sue Mizāj-Mukhtalif*). This leads to congestion, stagnation and blockage in surrounding structures. Nociceptors present in muscles, tendons, ligaments, joints, etc. are stimulated by the pressure exerted due to accumulation of morbid matter producing pressure symptoms like low back pain and tenderness. Difficulty in movement (walking) may be directly related to pain and stiffness in the lower back. Stiffness may be due to spasm in the joint structure like tendons, capsules etc. due to *Burudator blockage of Ghair-tabyee-Balgham*. Consequently, *Usool-i-ilaj* given by USM mainly based on *Imala* (Diversion) or evacuation (excretion) of morbid matter which accumulates in joint structures.

**CONCLUSION**

This review is an attempt to gather all the relevant information regarding research on role of *Habb-i-Gul-i-Aakh* in the Management of *Waja 'al Zahr* (Low Back Pain). All the past and recent published data went through to collect the data. *Habb-i-Gul-i-Aakh* is the well known drug of USM for the treatment of *Waja 'al Zahr.*
In the light of scientific study, *Habb-i-Gul-i-Aakh* has been documented for anti-inflammatory, analgesic and anti-arthritic effects. This justifies the unani literature in the context of scientific study. However, further studies are required to determine the mechanism of its pharmacological activities.

**CONFLICT OF INTEREST:**
Authors declare no conduct of interest.

**REFERENCES**


**ACKNOWLEDGEMENT**
We authors acknowledged to the Assistant Director (Seema Akbar) and library of RRIUM, Srinagar for providing us valuable support and books. We also thanks all the authors of the books and journals from which we have taken references.

**List of Abbreviations**

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<td>Low Back Pain</td>
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<tr>
<td>LS</td>
<td>Lumbosacral spine</td>
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<td>USM</td>
<td>Unani System Of Medicine</td>
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<tr>
<td>NSAIDS</td>
<td>Non-Steroidal Anti-Inflammatory Drugs</td>
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<tr>
<td>ESR</td>
<td>Erythrocyte Sedimentation Rate</td>
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<td>APV</td>
<td>Anterior Posterior View</td>
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<tr>
<td>LFT</td>
<td>Liver Function Test</td>
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<td>BSF</td>
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<td>CT</td>
<td>Computed Tomography</td>
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<tr>
<td>MRI</td>
<td>Magnetic Resonance Imaging</td>
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<td>SPECT</td>
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