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Takmīd-i-Hār (Hot Fomentation): An Effective Mode of Pain Management In The Light of Unani Medicine-A Review

Fatima Khan[1]*, Mohd Nayab[2], Abdul Nasir Ansari[3]

[1]Assistant Professor, Department of *Ilaj Bit Tadbeer*, Inamdar Unani Medical College & Hospital, Kalaburagi, India,[2] Assistant Professor, Department of *Ilaj Bit Tadbeer*, National Institute of Unani Medicine, Bangalore, India,[3] Professor and Head, Department of *Ilaj Bit Tadbeer*, National Institute of Unani Medicine, Bangalore, India
*Corresponding Author, Email: drfatimakhan021@gmail.com

Abstract

Background: *Unāni* system of medicine is a holistic traditional system of medicine. Since antiquity, this system of medicine has been a partofthe health care system. Usually, four modes of treatment, viz. regimenal therapy (*'Ilāj bi'l-Tadbīr*), diet therapy, pharmacotherapy, and surgery,are applied for the treatment of diseases. Regimenal therapy is an important mode, and *Takmīd*(fomentation) is one of the regimenal proceduresfrequently used to treat a variety of conditions. **Objective:** The purpose of this review is to provide insight into the effects of fomentation in various diseases.**Results:** Fomentation relieves pain and resolves inflammatory swelling of an organ. Fomentation is appealing to many people since it is non-invasive, simple, and inexpensive. It may be usedfor pain by people at home or by practitioners as part of a treatment regimen. *Unāni*pharmacopeias' have mentioned several formularies thatare used in the form of *Takmīd-i-Hār*(hot fomentation) for the treatment of many diseases. Hot fomentations were applied to the skin over the painful joint and for back pain. **Conclusion:** it would be a potential remedy to be assessed under clinical trials for numerous conditionsas it has a wider safety margin and praiseworthy efficacy against a wide range of maladies. The present work is an attempt to highlight the effect of fomentation in various diseases. This regimenal procedure is completely based on a holistic approach and is potential but needs to be explored scientifically.

Keywords: Hot Fomentation; *Ilāj bi'l-Tadbīr;*Pain management; Regimenal therapy*; Takmīd; Unāni* Medicine

Introduction

The International Association for the Study of Pain defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage"[1,2,3,4] Pain is an abnormal (*Ghair- Tab'yī*) condition which afflicts the body[5]. Avicenna defined '*Waja*' as 'one of the unnatural(abnormal) conditions that affect the body and that it is a 'feeling of incongruity"[6]. The word pain originated from the Latin word 'Poena,' which means punishment or penalty. Pain is a complex, multifactorial phenomenon[4]. *Unānī* medicine, as an alternative to mainstream medicine, believes in the promotion of health, prevention of diseases, and cures through regimenal and diet therapies[7]. According to World Health Organization (WHO), traditional medicines are relied upon by 65–80% of the World's population for their primary healthcare needs[8] In the *Unāni* system of medicine, there are three methods of treatment:'*Ilāj bi'l-Tadbīr* (Regimenal), '*Ilāj bi'l Dawā'* (Pharmacotherapy), and

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'*Ilājbi'l-Yad*(Surgery). Amongst these, '*Ilāj bi'l-Tadbīr* (Regimenal therapy) is one of the most popular methods of treatment practiced by ancient *Unāni* physicians for ages. '*Ilāj bi'l-Tadbīr* means treatment through regimens, which is done by modification in *Asbābe Sitta Ḍarūriyya* (six essential factors for life) to attain general health. It emphasizes a gentle, naturalistic, and holistic approach to alleviatethe pain syndrome. In the case of *Su-i-Mizāj*, the line of treatment should be to restore and normalize the *Mizāj* which is the main cause of pain and can be achieved by the intervention of various *Tadābīr* (procedures) like *ijāma* (Cupping), *Dalk* (Massage), *Irsāl-i-Alaq* (Leeching/Hirudotherapy), *Fasd* (Venesection), *Takmīd* (fomentation), *Qai* (Emesis), *Idrār* (Diuresis), Ḥ*ammām* (Bathing), *Ta'rīq* (Diaphoresis), etc. These regimens either help or aid in *Istifrāgh* (evacuation) or *Imāla* (diversion) of *Akhlāṭ radīya*(morbid humours), from the body or affected site. As soon as these morbid humours get evacuated, normal health gets restored, and the vitality of the body gets increased[9]

Several regimenal procedures including *Takmīd* (fomentation) were described by Unānī physicians to manage pain[10] .Fomentation holds an important position as a therapeutic modality in the management of various types of painful conditions"[11-12] .*Takmīd* (fomentation) is the process, which keeps the body or part of the body warm[13]. Fomentation is derived from the Latin word *fomentum*, which means the soothing application or poultice[14]. It is a therapeutic application of heat and moisture that is used to alleviate pain and stiffness[12,13,15]. *Hakeem Mohammad Azam Khan* in his book *Akseer-e- Azam* mentioned the application of hot medicated *Khubz*in*Waja al-ahr*to be very effective[10], *khubz* is an Arabic word that means roti (bread)[16]. Physiologically, the topical mode of the application provides better action and prominent curative power for diseases related to skin disorders, body pain, burns, wounds, poison bites, rheumatism, body strength, and headache[17]. Hot fomentation is highly effective and is mostly used as a treatment where the cause of pain is *Galeezriyāḥ* (viscous pneuma) produced due to *akhlāṭ-e-barida* (cold humours)[18]. Hot fomentation liquefies morbid matter, clears obstruction in channels of circulation,and directs morbid matter to certain locations from where they can be evacuated easily[19]. Using hot fomentation is appealing to many people since it is non-invasive, simple, and inexpensive[13]. Different healthcare disciplines commonly use heat applications for the treatment of musculoskeletal pain. It may be used by people with musculoskeletal pain at home or maybe employed by practitioners as part of a treatment regimen[20,21,22,23]. Various studies reported the pain-relieving effect of hot fomentation in musculoskeletal disorders and other painful conditions[24,25]. In this connection, it is worth exploring the use of hot fomentation instead of oral medications because of reduced risks. This regimenal procedure is completely based on a holistic approach and is potential but needs to be explored scientifically.

Material and Methods

Unāni classical books available in the National Institute of *Unāni* Medicine library were reviewed for information related to *Takmīd* (Fomentation) such as *Al-Qanoon fil-Tibb* (Unani Translation), *Kitab al-Hawi* Vol I, IV, V, VI, VII, VIII, IX, X, XXIII, *Aksee-re-Azam*, etc. Other published books and journals were also consulted for further details. For information on fomentation, major scientific databases, namely Pubmed, Science Direct, Springer, Elsevier, and Scopus for the most recent information, were searched. The search words used were*Takmīd*, fomentation, heat therapy, poultice,etc. Time restriction was not made to extract the most useful information. The articles published during 1956–2021 were hence included in the final manuscript.

Results

Description of *Takmīd* (Fomentation) in Unāni medicine and other traditional medicines. Foment is a warm, moist medical compress, usually in the form of a poultice, that is used for medicinal purposes[26]. Fomentations are very useful for treating strains, sprains, cramps, and nearly any other injured body part.

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According to *Ayurveda,* fomentation helps to relieve stiffness, heaviness, and coldness in the body. It can be put on by applying heat, such as steam, or by medicaments (powder, leaves, processed rice, sand, etc.) tied in boluses and heated and brought in contact with the body or part[27].

Different Medicaments of *Takmīd*[18]: For eyes, a soft sponge is used, For the chest and back, a bag of pearl millet (*Pennisetum glaucum*) is used. According to Dioscorides fomentation by pearl millet is very beneficial for the alleviation of pain, For the head and abdomen, warm oil is used, For hands and legs, warm water is used

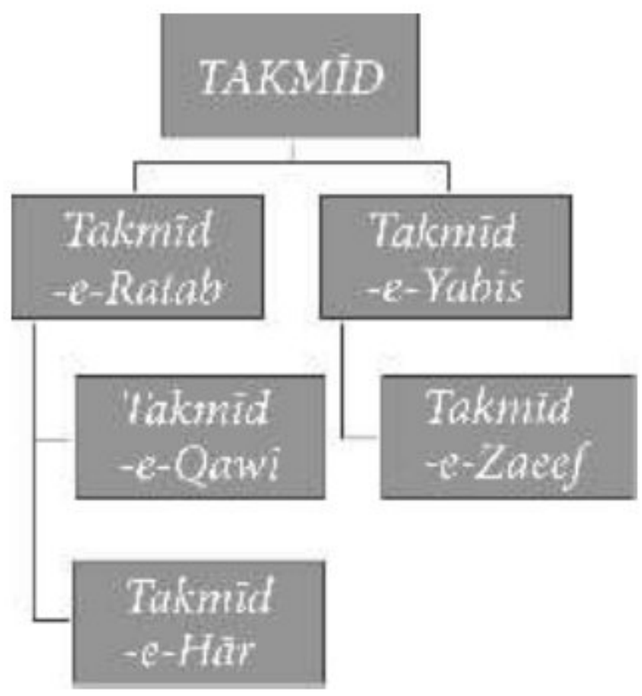

Fig 1: Types of Takmīd

***1. Takmīd -e-Ratab* (wet fomentation):**It can be performed in two ways either plain hot water is filled in rubber or plastic bottles and applied over the affected site or a piece of clean cloth or towel is soaked in hot water, rinsed, and applied over the affected area. *Takmīd -e-ratab* is beneficial when the cause of pain is *ṣafrā'wiakhlat* (bilious humour). Of all the different types of *Takmīd, Takmīd -e-ratab* is the most preferred type

***2. Takmīd -e-Yabis* (dry fomentation):** In this method, a clean piece of cloth is dry heated and applied over the affected area. *Takmīd-e-yabis* is beneficial when the cause of pain is *Raqeeq Khoon* (blood).

Sub-types of *Takmīd* [12,15,18]

I. *Takmīd-e-Qawi* (strong fomentation) is done where the aim is to make the viscous humours thin like in *Damawi awram* (sanguineous inflammation). *Qawi Takmīd* is a type of *Takmīd -e-yabis* here the duration of *Takmīd* is long.

ii. *Takmīd -e-Zaeef* (weak fomentation) is a type of *Takmīd -e-ratab*, here the duration of *Takmīd* is sh or

iii. *Takmīd-e-laza* (irritant fomentation): Fomentation by using copper vessels is irritant fomentation. *Takmīd -e-laza* is beneficial for *galeez akhlat* (viscous humours).

iv. *Takmīd-e-ghairlaza* (non-irritant fomentation): Fomentation with a hot water bag is non-irritant fomentation and is beneficial for *akhlat-e-laza* (irritant humours).

v. *Takmīd-e-Barid* (cold fomentation): At times cold water or ice water is also used for fomentation called cold fomentation.

Mechanism

The exact mechanism of action of hot fomentation remains unclear; various theories about the mechanism of action of fomentation were postulated such as it has effect by stimulating various areas with heat. Hot fomentation generates a dry heat that is endowed with hot and dry properties. The hot and dry properties confer fomentation secondary action of dissolution (*Taḥallul*), attenuation (*Talṭīf*), elimination (*Tanqiya*), and rejuvenation (*Ta'dīl*)[28-29]. It may be put forth that heat may dissolve the morbid matter diffused in the lumbosacral region and eliminate it by the process of sweating, thereby completing the process of elimination and rejuvenation (*Tanqiya wa Ta'dīl*). As soon as the causative cold morbid matter is dissolved, and eliminated by the action of heat, there is pain relief exhibited by improved functions and activities of daily living, thereby improvingthe quality of life. Because fomentation has been found to impact skin blood flow and temperature, it may also affect tissue blood flow, cell activity, and metabolic function, as well as treat many types of musculoskeletal pain[30-33]. As a result, hot

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fomentation may result in lower serum concentrations of pain-inducing mediators, inflammatory chemicals, and neutralization of the acidic milieu, as well as decreased pain perception and increased mobility[34,35].It warms muscle tissues, especially deeper tissues, treat chronic aches and pains, and claimed to draw out "bad humours". Applying hot fomentation could strengthen the efficacy of pharmacologic treatment and minimize pain in patients –[36]. Heat treatment for 15 to 20 minutes typically reduces minor stiffness or stress. Longer heat therapy sessions, lasting between 30 minutes and two hours, can help with moderate to severe pain[37,38].

Indications of ***Takmīd***

Several of the favourable effects of hot fomentation have been known since antiquity[39](Table No.1)

Table 1: Specific formulations for hot fomentation in different diseases

Indications	Specific Formulations
Rabw (bronchial asthma)	Fomentation is done on the chest with a decoction of *Shibt (Anethumgraveolens L.)*, *Babuna (Matricariachamomilla L.)*, and *Marzanjosh (Origanummajorana L.)*. This form of treatment is also beneficial for coughs and congestion. Fomentation helps break up congestion[40,41]
Dhāt-al-janb (Pleurisy)	Fomentation relieves the pain in the ribs by drying up the pleuritic fluid and I ncreasing blood circulation in the lungs[41]
Qurūḥ al-Mathāna (Interstitial Cystitis)	Fomentation should be done with *Roghan-i-Shibt (Anethumgraveolens L.)* and *Beekh-i-khatmi* (*Althea officinalis*L.)[42]
Waram al-GurdawaMathāna: (Nephritis and cystitis)	*Takmīd* is done on the *masana*(bladder) with a decoction of *Karnab* (*Brassica oleracea* L.), *Khatmi*(*Althea officinalis*L.), and *Saboosgandum*(*Triticumaestivum* L.)[42]
Waram al-gurda (Nephritis)	*Takmīd* is done with a *Roti* (bread) soaked in *Roāghan-i-Shibt (Anethumgraveolens L.)* or *Roghan-i-Babuna (Matricariachamomilla L.)*[42]
Usr al-Bawl (Dysuria)	In the case of dysuria, *Takmīd-i-Ratab* should be done[42]
Ikhtilāj(Fasciculation)	*Takmīd* is done by *Akarkara* (*Anacyclus pyrethrum* L.), *JundBedastar* (Castoreum (Castor Beaver), salt water, and *Natroon* (Sodium)[43,44]
Ra'sha (Tremor)	*Takmīd* is done with medicines having *Barid* and *Yabis*temperament (Cold and dry)[44]
Ṣudā' (Headache)	*Takmīd* is done with salt and *Jaosheer* (*Ferula galbaniflua*)[40,44]
Sū'-i-Mizāj SardKhushk(Abnormal cold and dry temperament)	*Takmīd* is done over *Mi'da*(stomach)by *Roghan-i-Balsan* (Balsam oil) and *Roghan-i-Nardeen* (*Nardostachysjatamansi* DC)[45]
Waram al- Mi'da(gastritis)	*Takmīd* is done on *Shikam* (abdomen) and *Pehlu* (Loin)[45]
SawdāwīNafkh(Flatulence)	*Takmīd* is done with *Sirka*(acetic acid) mixed with a decoction of *Babuna* (*Matricariachamomilla* L.), *Marzanjosh* (*Origanummajorana* L.), *Suddab*(*Rutagraveolens* L.), and *Habbulghar* (*Laurusnobilis* L.)[45]*Takmīd* is done on *Shikam*(abdomen)[45]
Ḍu'f al-HaḍmMi'da (delayed digestion)	In case of delayed digestion or indigestion, *Takmīd* is done over *Mi'da* (stomach)[45]
Qay'(Vomiting)	*Takmīd* is done on *Shikam*(abdomen)[45]

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Būlīmūs (canine appetite)	*Takmīd is* done over *Mi'da*(stomach) [45]
Zalaq al-Am'ā' (Lientericdiarrhea)	*Takmīd* is done with warm oil [46]
Qilla al-Laban (suppressed lactation)	*Takmīd* is done with a decoction *of Methi*(*Trigonellafoenum-graecum* L.),
	Tukhm-i-Kataan(*Linumusitatissimum* L.), *Khatmi* (*Althea officinalis* L.) [47]
Waram al-Thadī (Mastitis)	*Takmīd* is done with a decoction of *SaboosGandum* (*Triticumaestivum* L.) and *Suddab* (*Rutagraveolens* L.) [47]
alāba al-Kabid(Cirrhosis of the liver)	In case of cirrhosis of the liver, *Takmīd* is done empty stomach with decoctions and warm oil [47]
Salāba al-Ṭiḥāl (chronic splenitis)	*Takmīd* is done with bran prepared with *Sirka*(acetic acid) and *Shibt*
	(*Anethumgraveolens* L.) [47]
Qūlanj(Colic)	*Takmīd is done with Bajra (millet)* [48]
Kathrat-i- ay (polymenorrhoea)	*Takmīd is done with a foment prepared from, dried fig, barley flour, and Methi (Trigonellafoenum-graecum L.)* [49]
Shuqāq al-Maq ad (Anal fissure)	A simple hot oil fomentation can be effective [42]
Waja al Mafā ilBarid(polyarthritis)	*Takmīd* with *Ustukhuddus* (*Lavandulasteochas* L.) is beneficial in *Waja ulMafasilBarid*[10,40]

Hot fomentations (poultices) are applied to the skin over the painful joint and for back pain. Hot sand fomentation reduces pain and relaxes the muscle. *Artemisia absinthium* Linn, *Piper nigrum* Linn, *Adansonia digitata* Linn, *Ricinus communis* Linn, and *Vitex negundo* Linn–leaf fomentation is used for joint pain. *Acacia macracantha* H.& B. ex. Willd, *Heisteria acuminate* (H. & B.) Engler and the dried bark fomentation is used topically for arthritis and rheumatism[50-53].

Contraindications and Cautions

The various contraindications and cautions include the pain produced due to *khilṭ-e-hār* (hot humour), *imtilā'* (congestion), loss of skin sensation due to unconsciousness,paralysis of the part, advanced vascular disease, malignancy, the tendency to bleed (hemorrhage), rash or other skin condition that worsen by heat. It also include sinflammation, swelling, broken skin like a burn, wound, sore, cracked skin from eczema or severe chapping, and implanted devices such as a cardiac pacemaker, stomach band, and infusion pump.Diabetics (should not receive hot applications to the legs or feet), peripheral vascular disease, including diabetes, Buerger's disease, arteriosclerosis of the lower extremities, sensitivity to heat, pre-existing conditions like deep vein thrombosis, multiple sclerosis, etc. should not use heat therapy due to the higher risk of bur ns or complications due to heat application[14,18,37, 38, 40,

Effects of *Takmīd*1 [3,15,26,40]

Takmīd Promotes an increase in circulating white blood cells. Increases blood flow to the skin, thereby relieving internal congestion. Relieves muscle spasms by increasing circulation and releasing muscle tension. Relieves pain in muscles and joints by counter-irritation and decongestion. Relieves pain from internal organs. Increases elimination by promoting sweating. Stimulates or sedates according to the temperature of the application. Increases the flexibility of soft tissue. Dilates the blood vessels of the muscles, which increases the flow of oxygen and nutrients to them helping to heal damaged tissue. Stimulates the sensory receptors in the skin, which will have the effect of decreasing the transmission of pain signals to the brain. Helps to allow stretching of the soft tissues including muscles, connective tissue, and adhesions, which results in decreased stiffness, increased flexibility, and feelings of comfort.

Discussion

According to Avicenna and Razes (*Zakariya Rāzi),* abnormal cold temperament is the most common cause of pain thatis caused by raw phlegm and pneuma. Abnormal cold temperament occurs when abnormal

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phlegm accumulates in the joint structures[16,54]. Hence, pain is considered a cold phlegmatic disease (*Bārid BalghamiMarḍ*). Heterotherapy (*'Ilāj bi'l Ḍidd)* is among the fundamentals of *Unāni* treatment especially when abnormal temperament is the core cause of affliction. As the temperament of pain is cold and moist (*Bārid Raṭab)*; the employed treatment should have hot and dry (*Ḥār Yābis)* properties. The exact mechanism of action of hot fomentation remains unclear, various hypothetical theories about the mechanism of action of fomentation were postulated such as it has effects by stimulating various areas with heat. Hot fomentation generates a dry heat that is endowed with hot and dry properties. The hot and dry properties confer fomentation secondary properties of dissolution (*Taḥallul*), attenuation (*Talṭīf*), elimination (*Tanqiya*), and rejuvenation (*Ta'dīl*) [28, 29]. It may be put forth that heat may dissolve the morbid matter diffused in the lumbosacral region and eliminate it by sudation, thereby completing the process of elimination and rejuvenation (*Tanqiya wa Ta'dīl*). As soon as the causative cold morbid matter is dissolved and eliminated by the action of heat, there is pain relief exhibited by improved functions and activities of daily living, thereby improvingthe quality of life. Superficial heating of tissues stimulates thermoreceptors in the skin and deeper tissue which has an inhibitory effect closing the 'pain gate'. Pain-provoking neurotran smitters and metabolites, such as bradykinin and prostaglandin, are 'washed out from the area [55].Chinese herbal fomentation improves kinematic response, may further reduce stress-related muscle tension, and modify neurobiological pain perception –[25]. Properly employed fomentation softens and melts the body's toxins to efficiently expel these from the body and rid the body of pain[34].Babu *et al.*,(2016) reported that the local application of hot fomentation over the infiltrated site was effective in the resolution of intravenous infiltration and associated pain[24]. Raheem *et al.*, (2020) reported that *Takmīd-e-yabis* (dry fomentation) is effective in reducing pain and tenderness in patients with chronic neck pain and improving cervical range of motion and quality of life[56]. A study conducted by Debnath *et al.*, (2020) reported that hot water with Epsom salt compress is effective in reducing knee joint pain[57]. Manna *et al.*, (2016) reported that hot fomenta tion was effective in the reduction of breast engorgement[58]. A study by Nandini *et al.*, (2018) suggested when hot sand fomentation is combined with yoga; patients with non-specific neck pain have a greater reduction in pain and disability, as well as an increase in their social functioning[51]. Okram *et al.*,Suryawanshi, and Sankar reported that hot water fomentation with Epsom salt was effective on knee joint pain among the elderly[59,60,61]. Tong *et al* reported that Chinese herbal fomentation reduced the frequency of early thrombosis of arteriovenous fistulas (AVFs), and is clinically useful for the maturation of AVFs[62]. Tong *et al* in their study reported that Chinese herbal fomentation at Yongquan point (K1) on both sides has some hypotensive potential[63]. Zen-Yu *et al* in their study suggested that Chinese herbal fomentation could improve mobility in terms of the range of motion (ROM) and instantaneous center of rotation (ICR) in patients with chronic neck pain[64].

Conclusion

A lot of documented claims and research reports showed that topical treatment like *Takmīd-i-Hār* is a convenient and simple option that can be used in the management of pain. The basic objective of *Takmīd-i-Hār* is to achieve pain relief and to decrease stiffness. Italso decreases inflammation. However, only a few scientific research on*Takmīd-i-Hār* have been conducted to date to validate it. Detailed research forthe mechanism of action and well-designed standard operating procedures of *Takmīd-i-Hār*, supported by scientific studies, and universal acceptability will help in the safe and efficient administration of this regimen.

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Abbreviations: Hot sand fomentation (HSF),

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arteriovenous fistulas (AVFs), range of motion (ROM), instantaneous center of rotation (ICR)

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