Nutūl as an effective and time tested regimenal modality in Unani system of medicine: An Overview

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Abstract

Ilāj bit tadbīr is one of the treatment plans in the Unani system of medicine which includes the modification in asbāb-i-sitta zaroorya (six essential factors) through certain interventions. Nutūl or irrigation is a classical and effective method in regimenal therapy which refers to pouring or dripping of liquid slowly and steadily over the body part from a pre-fixed height. The benefits achieved are an amalgamation of neurological effect, psychological effect and pharmacological actions of the procedure and the drugs used. For this purpose, usually water, oil or medicated decoction is poured from a height over specific sites of body in certain diseases. Therapeutically, nutūl is effective in various ways such as dispersing the causative morbid matter from the part, normalizing the maltempament, relieving pain, increasing the circulation, etc. It is specifically useful as an adjuvant treatment in the management of central nervous system disorders like headache, insomnia, migraine, amnesia, melancholia, vertigo, epilepsy and also in certain other disorders like cystitis, mastitis, arthralgia, etc. These therapeutic effects are expected due to the kaifiyat (quality) of liquid and the constituents of the formulation used in the procedure. Nutūl has an analgesic effect also, hence, recommended in several Musculoskeletal problems such as waja-ul-mofasal (osteoarthritis), waja-ul-zahr (low backache), waja-ul-azlat (myalgia), irq-un-nasa (sciatica), etc. The exact mechanism of action of Nutūl therapy is not still known but few preliminary reports suggested that it has an anxiolytic effect through decreasing the plasma noradrenaline and urinary serotonin excretion, decrease in rate of breathing reduction in diastolic blood pressure and heart rate with lowered sympathetic tone.

Keywords: Tahillī; Kaifīyat; Mizāj; Tadbīr, Joshānda

1. INTRODUCTION:

Tadbīr is an Arabic word that stands for "Regimen" (systemic plan) while as Ilāj means “therapy” or “treatment”. Therefore, Ilāj bit tadbīr is a treatment through a regimen that is opted according to the pathogenesis of the disease. If the patient is having su-i-mizāj (Altered Temperament), lifestyle modifications in diet, sleep, physical activity, climate should be done. Interventions such as dalk (massage), hammām (turkish bath), inkibāb (inhalation), nutūl (irrigation), etc. should also be taken into account.

Nutūl is one of the classical and well-established regimenal modalities of Ilāj bit tadbīr which is considered very effective and useful in various diseases. It is a procedure of slowly and steadily dripping of medicated liquid from a pre-fixed height over selected body parts. It is also known as Tarera or Dhaar 1-4. Some unānī physicians used the term sukāb synonymously with nutūl 4, but the basic distinction between nutūl and sukāb is the distance from which the liquid is being poured. If the liquid is poured from a short height, the procedure is called sukāb and if the height is more, it is known as nutūl 1-5. Some of the scholars separated the two with more distinguishing characters and that is continuity of pouring the liquid. The continuity of pouring the liquid remains intact in nutūl while interruption may occur in the procedure of sukāb 1. Two types of therapeutic effects are expected from this therapy; one due to kaifiyat of liquid and the second due to specific actions of drugs used 1. An individual experiences a feeling of wellness, mental clarity, and comprehension after the procedure 7.

2. MATERIALS AND METHOD

PUBMED, MEDLINE, and GOOGLE SCHOLAR databases were searched for the published articles with nutool, nutul, shirodhara, regimenal therapies, Unani medicine, Ilāj bit tadbīr, etc. Relevant clinical trials published in peer-reviewed journals in the English language were only included in this review article. Unani literature was extracted from the classical Unani books.
3. HISTORICAL BACKGROUND

Ibn Sina considered nutūl therapy as one of the best treatment modalities when Tabīlī-i-warm (dissolution of inflammation) is required. He also advocated its use in those patients having temperamental abnormalities as well as for strengthening body parts. Nutūl with bābāna for inflammatory condition and khashkhash for mental relaxation is recommended by Ismail Jarjāni.

3.1. Definition

Nutūl is a unique method in which plain water, joshānda/khaisānda of specific drugs or oil is being poured slowly and steadily over the specific body part from a pre-fixed height for a predetermined period of time.

3.2. Aims and Objectives

3.2.1. Tabīlī-i-Mawād – to disperse the akhlāt-i-fāsidah (morbid humours) from the affected part

3.2.2. Ta’īlī-i-Mizāj – to normalize the su-i-mizaj (Altered Temperament) of an organ

3.2.3. Taskīn-i-Alam – to relieve the painful condition through imālah-i-akhlāt-i-fāsidah (diversion of morbid humours)

3.2.4. Muqawwvi-i-A’sāb – to strengthen the nerves through increasing circulation and nutrition

3.2.5. Daf-i-Tashannuj – to relieve spasm

3.2.6. Tanqīa-i-Mawād – to evacuate the morbid matter locally

3.2.7. To enhance or improve the blood circulation

3.2.8. To relieve the fatigue

3.2.9. To relieve chronic condition like sarsām, fālij, waja-ul-maṭfaṣil, etc.

3.3. Classification

3.3.1. Nutūl-i-Ḥār (Hot Irrigation)

3.3.2. Nutūl-i-Bārid (Cold Irrigation)

3.3.3. Nutūl-i-Muqawwvi (Tonic Irrigation)

3.3.1. Nutūl-i-Ḥār (Hot Irrigation):

A joshānda or oil consisting of hār advia or plain lukewarm water is used in this type of nutūl which acts as muḥallīl-i-awrām (anti-inflammatory). Tabīlī-e-awrām is the main aim of this type of nutūl. Two therapeutic effects may be achieved; one due to the ḥārārat of the liquid and the second due to the specific actions of the drugs used. Bārid akhlāt-i-fāsidah (cold morbid humours) should be eliminated through nutūl-i-ḥār (hot irrigation) irrespective of the temperament of the organ followed by nutūl-i-bārid (cold irrigation) for toning up the loosened organs. The rationale behind this is that the heat of nutūl-i-ḥār relaxes or loosens the structures of the particular organ, while nutūl-i-bārid helps in restoring the normal toxicity of the organs.

3.3.2. Nutūl-i-Bārid (Cold Irrigation):

A joshānda/khaisānda or oil consisting of bārid adviah or plain cold water is used in this type of nutūl which acts as mu바바드 (coolant). Main aim of this kind is tabīlī-e-ḥārārat. The therapeutic effect may be achieved due to the barūdat of the liquid and the active constituents of the liquid used.

3.3.3. Nutūl-i-Muqawwvi (Tonic Irrigation):

Both nutūl-i-ḥār and nutūl-i-bārid are used in this type of nutūl alternatively to improve the circulation of the part or organ of the body. It provides nutrition to the weak organ and acts as a muqawwi-i-a’sāb (nervine tonic).

3.4. List of Equipment:

| Nutūl table | Nutūl pot | Cotton | Gas stove |
|-------------|-----------|--------|-----------|
| Container for liquid collection | Pot for heating the liquid | Rubber sheet | Towel |

3.5. Procedure

3.5.1. Pre-procedure care:

- Blood pressure and pulse rate should be recorded prior to the procedure.
- The patient should be asked to lie in a supine/prone/left or right lateral position on the nutūl table as required for the access of the target area for the procedure.
- The target area for nutūl should be sufficiently exposed while other body parts remain covered.
- Small pillows or bundles of sheets are put under the neck/back/or other required area to keep the patient comfortable.
- The recommended amount of liquid (water, oil, or joshānda) is poured into the nutūl pot and mounted on a height-adjustable stand.
- The eyes are covered with cotton pads to abstain from spilling oil into them for safety purposes while doing nutūl on the forehead.

3.5.2. Technician’s preparation:

- The technician washes the hands and wears sterile gloves.
- The technician remains polite, cooperative, and attentive during the procedure.

3.5.3. Procedure:

- The whole procedure is explained to the patient and reassured of safety.
- The nutūl pot hangs exactly over the targeted body part at a recommended height and a calibrated stream of plain water/oil/joshānda is allowed to fall on that targeted body part (figure 1).
- A continuous stream of recommended liquid is poured over the targeted body part.
- The used oil or medicated decoction is collected in a container.
- The collected liquid is reheated to warm and put in the pot to repeat the nutūl procedure if required.
- If there is any irritation or rashes on the skin after liquid contact, the nutūl is immediately stopped.
3.5.4. Post-procedure care:

- After nutūl, the oil or decoction is wiped off from the body part.
- The patient is advised to take rest for 15 minutes and observed for any untoward effect.
- The patient may be advised to take bath with medicated water or lukewarm water after 30 minutes.

![Figure 1: Procedure of nutūl](image)

### Figure 1: Procedure of nutūl

- Nutūl-Ḥār
- Nutūl-i-Kārid
- Yarārāt
- Barīdāt

- Dilatation of Blood Vessels
- Increase in blood circulation
- Opening of skin pores
- Constriction of blood vessels
- Decrease in blood circulation
- Closing of skin pores

- Ṭaḥṭī-i-Mawād (Dissolution of Matter)
- Ṭamqā-i-Mawād (Evacuation of Matter)
- Ṭakṣīn-i-Alam (Analgesia)
- Ṭaqwiyat-i-ʿAṣāb (Nervine Tonic)
- Ṭaṭṭī-i-Mizāj (Temperamental Normalization)
- Ṣumāl-i-Mawād (Diversion of Matter)
- Ṭakṣīn-i-Alam (Analgesia)
- Ṭaqwiyat-i-ʿAṣāb (Nervine Tonic)
- Ṭaṭṭī-i-Mizāj (Temperamental Normalization)
- Decreases the fluid loss

### Figure 2: Flowchart showing the mechanism of action of nutūl

3.6. Indications and Specific Formulations:

Unani physicians mentioned nutūl therapy in various kinds of diseases with specific poly-herbal formulations. Below is the list of most common diseases in which nutūl has been recommended with their specific formulations (Table 2).
Table 2: Indications & specific formulations

| Indication         | Specific formulations                                                                                                                                 |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Suda‘i-hār (Headache) | Jau (Hordeum vulgare), peel of Kaddu (Laginaria siceraria), Tukhm-i-Kāhū (Lactuca sativa Linn), Isagphol (Plantago ovate seeds), Banafshah (Viola odorata), Ḫaṭmi (Althea officinalis), Gul-i-Nīlofar (Nelumbium speciosum) 17 |
|                    | Banafshah (Viola odorata), Jau (Hordeum vulgare), Kaddu (Laginaria siceraria), Khurfa (Portulaca oleracea), Katān (Linum usitatissimum), peel of opium (papaver somniferum), the root of Luṭfāh (Atropa belladonna), Ḫaṭmi (Althea officinalis), Tukhm-i-Kāhū (Lactuca sativa Linn), Ḵarg-i-Bed (Salix alba), Gul-i-Gulāb (Rosa centifolia) 17  |
|                    | Gul-i-Nīlofar (Nelumbium speciosum), Ḵubbāzī (Malva sylvestris), peel of opium (papaver somniferum), and Jau (Hordeum vulgare) 17 |
| Suda-i-bārid (Headache) | Ustukhāhdūs (Lavandula stoechas), Berg-i-Ghār (Laurus nobilis), Qaisūm (Artimisia abrotanum), Ḫulba (Trigonella foenum), wheat husk, salt, bānānāh (Matricaria chamomile), ḫarg-i-tūranj (Citrus medica), badranjboya (Melissa parviflora), sazij (Cinnamomum obtusifolium), qaranf (Syzygium aromaticum), bādhān (Foeniculum vulgare Mill), ḫībkh-i-bādān (Foeniculum vulgare Mill), ḫībkh-i-karas (Carum raxburghianum), Gul-i-Gulāb (Rosa centifolia), pudina (Mentha arvensis), sudād (Ruta graveolens), ḥashā (Thymus vulgaris) 17 |
| Shaqīqa (Migraine) | Patients of shaqīqa-i-iḥār should be treated with bārid adḥiṭāf first. If the symptoms persist, a Jōshānda of ḡakhkhāsh (Papaver somniferum), banafshā (Viola odorata), and wheat husk is used as a nūṭāl over the scalp and forehead 17 |
| Sarsām (Meningitis) | A Jōshānda of bānānāh (Matricaria chamomile), Ḫībht (Anethem sowa), Berg-i-reḥān (Ocimum sanctum), banafshā (Viola odorata), gul-i-nargis (Narcissus tazetta) is prepared and mixed with roghan-i-bānānāh, roghan-i-kunjād, roghan-i-bādām and milk and used for nūṭāl over the forehead 17 |
|                    | Joshānda of ḡakhkhāsh as nūṭāl is recommended to induce mental relaxation and mixed with bānānāh for the resolution of inflammation 8 |
| Mālankhāliya | A Joshānda of shībt (Anethum sowa), susan (Iris florentina), bānānāh (Matricaria chamomile), and nakkhānāh (Trigonella uncata) is recommended as nūṭāl over the scalp for Mālankhāliya 9,17 A lukewarm Joshānda of Bānānāh (Matricaria chamomile) nakkhānāh (Trigonella uncata) ḫarg-i-bādānjboya (Nepeta hindostana), ḫarg-i-sar (leaves of Čappresum semepervirens), jau al-sara (Fruit of Čappresum semepervirens), flowers of henna (Lawsonia alba), uṣna (Permelia perlata), ḫarg-i-kubāzī (Malva sylvestris), ḫarg-i-khamti (Althea officinalis) and wheat husk should be used as nūṭāl over the head continuously in the patients of Mālankhāliya 9,17 |
| Sahar (Insomnia) | A Joshānda of banafshā (Viola odorata), Gul-i-Nīlofar (Nelumbium speciosum), Gul-i-Gulāb (Rosa centifolia), Tukhm-i-Kāhū (Lactuca sativa Linn), ḵishnā ṣabz (Coriandrum sativum), ḡakhkhāsh (Papaver somniferum), and Jau (Hordeum vulgare) is considered effective as a nūṭāl in the forehead in the patients of insomnia 17 |
| Nisān (Annesia) | A Joshānda of bābūnā (Matricaria chamomile), nakkhānā (Trigonella uncata), qurtum kofta (Corhamus tictorious, ground), Tukhm-i-khamti (Althea officinalis seeds) or ḫarg-i-khamti (leaves of Althea officinalis) is recommended for nūṭāl over the scalp 17 |
| Fāljī (Hemiplegia) | A hot mixture of Ṣirka and roghan-i-gul is recommended for the patient of fāļjī as a nūṭāl 17 |
| Dawār (Vertigo) | A Joshānda of bābūnā (Matricaria chamomile), ḡakhakhānā (Trigonella uncata), Marzanjōsh (Origanum majorana saṭar (Thymus serphyllum), and reḥān (Ocimum basilicum) is recommended as nūṭāl for the patients of vitiligo 9,17 |
| Sara (Epilepsy) | A Joshānda of Bābūnāh (Matricaria chamomile), Nakkhānāh (Trigonella uncata), and Marzanjōsh (Origanum majorana) is recommended as nūṭāl in the cases of epilepsy 17, Shībt (Anethem sowa) and Ḫrangyasīf (Artimisia abrotanum) may also be added 9,17 |
| Mānīn | A Joshānda of banafshā (Viola odorata), nīlofar (Nelumbium speciosum), ḫarg-i-khamti (Althea officinalis), sweet basil (Ocimum basilicum), jau (Hordeum vulgare), ḫarg-i-bād (Salix alba), Gul-i-Gulāb (Rosa centifolia), Berg-i-Kāhū (Lactuca sativa), Berg-i-Makoḥ (Solānum nigrum) is used for the patients of mania 9,17 |
| Dhat-ul-jamb (Pleurisy) | Nutāl of warm water is prescribed on the affected site which gives relief in pain 17, Warm-i-Mathānā (Cystitis) | Nutāl with roghan-i-gul (Rose oil) is found useful if done on the pelvic region 17, |
| Hiṣāt-i-Kuliya (Renal Stone) | A Joshānda of gul-i-ṭeṣu (Butea monosperma), gul-i-kasam (Corhamus tictorious), tukhm-i-kharpaṣa (Cucumis melo), tukhm-i-khyārīn (Cucumis sativus seed), khār-i-khasāk (Tribulus terrestris) is prepared and poured over the site of pain 9,17, |
| Hiṣāt-i-Mathānā (Urinary Bladder Stone) | A Joshānda of bābūnāh (Matricaria chamomile), nakkhānāh (Trigonella uncata), khamti (Althea officinalis), and wheat husk is recommended over the pelvic region for Hiṣāt-i-Mathānā 17, |
| Wajā-ul-Mafṣīl (Arthra) | A Joshānda of makōḥ (Solānum nigrum) and khār-i-khasāk (Tribulus terrestris) is recommended and recommended by daikh-i-layvin of the affected area or joint with roghan-i-gul 5, Warm-i-Sadī (Mastitis) | A Joshānda of bābūnāh (Matricaria chamomile), shībt (Anethem sowa), huļba (Trigonella foenum graecum), qasām (Artemisia absinthium) and jund baidastar (Castoreum) is advocated as nūṭāl over the affected area 5, |
4. DISCUSSION

Nutūl or Ḯḥrj-i-mwvād (evacuation of morbid material) and tāḍāl-i-miżāj-i-Aʿzā Ṯ (normalization of Altered Temperament of organ) and to improve the qwwat-i-muḍīfāt (defense mechanism of body), resulting in desired neurological, psychological and pharmacological effects in various diseases. It also enhances the local absorption of medicines thus helps in getting the desired action of medicine locally. Nutūl has multidirectional effects including tehrik-i-aʿsāb (nerv stimulation). It helps in the dissolution of causative pathological material from the diseased part of the body, modifies local temperature of the part, and also helps in imāl-i-mwvād-i-fāsīda towards the periphery or away from the diseased organs. In the case of nutūl-i-har, the temperature of the part is raised due to increased blood circulation in dilated vessels which removes the stagnant causative matter from its site of lodgement. It also increases the supply of nutrients at the diseased parts or organs resulting in improved recovery. Nutūl is effective by having musassākin-i-alam (algesic), mukhādīr (sedative), murātīb (emollient), mubārāl (cold), munavīm (hypnotic), muqawwātī dimag (brain tonic) properties (figure 2) 1, 15, 16, 21.

Relaxation induced by nutūl therapy is reflected by bradycardia and lowered sympathetic tone. Sympathetic relaxation results in increasing blood circulation and skin temperature. Nutūl over the forehead is especially known to have psychological effects which support the anxiolytic effect of the therapy. Biochemical changes include suppression of noradrenaline & alpha receptors which result in sympathetic suppression rather than parasympathetic activation. The impulses from the forehead cause stimulation of the trigeminal nerve and also a somato-autonomic reflex and change in levels of various neurotransmitters including serotonin and catecholamine, resulting in sympathetic suppression and psycho-neuro-immunologic effects 2, 3, 4, 7.

It was explained in one study that the stimulus from the skin especially of the forehead is carried by the ophthalmic branch of the trigeminal nerve to the reticulospinal neurons. A small fraction of this causes an immediate motor response and much of the remaining is stored for future control of motor activities. Therefore, repeated stimuli are needed for consolidation of this information which needs 5-10 minutes for minimal consolidation and about one hour for stronger consolidation. This explains the practice of carrying out nutūl for about 45 minutes. Further, to achieve the permanent effect of nutūl, there must be a change in response characteristics of different neuronal pathways, which may be brought about by regular therapy for a fortnight. Regular or continuous pressure input generates a continuous impulse to the central nervous system (CNS) thereby continuously stimulating the CNS. Practicing this procedure regularly for 15 days may lead to long-lasting stimulation of the CNS 7, 8.

Several studies were conducted to evaluate the efficacy of nutūl or medicated liquid dripping procedure in the treatment of insomnia 16, 25, 29. These studies showed improvement in insomnia which may be due to relaxation of the sympathetic nervous system 30, 31. However, properly randomized, controlled, blinded clinical trials on insomnia and other diseases are needed to be conducted.

5. CONCLUSION:

Nutūl therapy is considered one of the effective methods of treatment in Ilaj-bit-tadbeer for various disorders and complications as documented in classical Unani literature. This technique is very safe, cost-effective, easy to administer, and may be employed in low-resource settings also, without possible side-effects as compared to oral medication. Nutūl therapy irrespective of use of any kind of liquid exerts its own effect by the virtue of its sheer streaming effect on the body part. In addition to the inherent effect of nutūl therapy the efficacy is further enhanced by using drugs. Promising physical, psychological, neurological, as well as immunological benefits of this regimen were claimed through several preliminary studies. Further research is vital to clarify the full clinical and economic implications of nutūl therapy and to determine the true potential of this age old reliable regimenal therapy of Unani system of medicine. Therefore, conduction of more extensive, exhaustive, randomized clinical studies on a large sample size is the need of the hour to evaluate its efficacy in various diseases on reliable and validated scientific parameters.

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