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 asbīb-i-sitta zurooriyās (six essential factors) through certain interventions. Nutūl 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 maltemperament, 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, arthritis, etc. These therapeutic effects are expected due to the kafiyat (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-mafasil (osteoarthritis), waja-uz-zahr (low backache), waja-ul-azlat (myalgia), iqra-un-nasa (sciatica), etc. The exact mechanism of action of Nutūl therapy is still not 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: Tadbīr, Kafiyat; Mazāj; 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 Dhaaar1–4. Some unānī physicians used the term sukāb synonymously with nutūl4, 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 nutūl1–5. 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 sukāb1. Two types of therapeutic effects are expected from this therapy; one due to kafiyat of liquid and the second due to specific actions of drugs used1. An individual experiences a feeling of wellness, mental clarity, and comprehension after the procedure7.

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 Tahliili-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 babbāna 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. Tahliili-i-Mawād – to disperse the akhlāt-i-fāsida (morbid humours) from the affected part

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

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

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

3.2.5. Daf-‘i-Tashannunj – to relieve spasm

3.2.6. Tunqia-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-ma’fāsīl, etc.

3.3. Classification

3.3.1. Nutūl-i-Ḥar (Hot Irrigation)

3.3.2. Nutūl-i-Bārid (Cold Irrigation)

3.3.3. Nutūl-i-Muqawwvi (Tonic Irrigation)

3.3.1. Nutūl-i-Ḥar (Hot Irrigation):

A joshānda or oil consisting of ḥar advia or plain lukewarm water is used in this type of nutūl which acts as muḥallil-i-awrām (anti-inflammatory). Tahliili-e-awrām is the main aim of this type of nutūl. Two therapeutic effects may be achieved; one due to the ḥārdrat 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-ḥar (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-ḥar 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 advia or plain cold water is used in this type of nutūl which acts as mubārid (cooiant). Main aim of this kind is tahliili-e-ḥārdrat. The therapeutic effect may be achieved due to the bārūdat of the liquid and the active constituents of the liquid used.

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

Both nutūl-i-ḥar 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 muqawwvi-i-a’ṣāb (nervine tonic).

3.4. List of Equipment:

<table>
<thead>
<tr>
<th>Nutūl table</th>
<th>Nutūl pot</th>
<th>Cotton</th>
<th>Gas stove</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container for liquid collection</td>
<td>Pot for heating the liquid</td>
<td>Rubber sheet</td>
<td>Towel</td>
</tr>
</tbody>
</table>

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 any 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 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

<table>
<thead>
<tr>
<th>Indication</th>
<th>Specific formulations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Suda'i-hār</strong></td>
<td>Jau (Hordeum vulgare), peel of Kaddu (Laginaria siceraria), Tukhm-i-Kāhu (Lactuca sativa Linn), Isapghol (Plantago ovate seeds), Banafshah (Viola odorata), Khatmi (Althea officinalis), Gul-i-Nilofar (Nelumbium speciosum) 17</td>
</tr>
<tr>
<td>(Headache)</td>
<td>Banafshah (Viola odorata), Jau (Hordeum vulgare), Kaddu (Laginaria siceraria), Khurfa (Portulaca oleracea), Katān (Linum usitatisimum), is poop of (papaver somniferum), the root of Lufāf (Atropa belladonna), Khatmi (Althea officinalis), Tukhm-i-Kāhu (Lactuca sativa Linn), Barg-i-Bed (Salix alba), Gul-i-Gulāb (Rosa centifolia) 17</td>
</tr>
<tr>
<td><strong>Suda-i-bārid</strong></td>
<td>Ustukhuddūs (Lavendula stoechas), Berg-i-Ghār (Laurus nobilis), Qaisūm (Artemisia abrotanum), Ḥulba (Trigonella foenum), wheat husk, salt, bānānāh (Matricaria chamomile), barg-i-turanj (Citrus medica), Badranjboya (Melissa parviflora), sazjī (Cinnamomum obtusifolium), qaranf (Syzgium aromaticum), bādāyān (Foeniculum vulgare Mill), beikh-i-bādāyān (Foeniculum vulgare Mill), beikh-i-karafs (Carum roxburghianum), Gul-i-Gulāb (Rosa centifolia), pudina (Mentha arvensis), sudābā (Ruta graveolens), ḥasha (Thymus vulgaris) 17</td>
</tr>
<tr>
<td>(Headache)</td>
<td></td>
</tr>
<tr>
<td><strong>Shaqiqa</strong></td>
<td>Patients of shaqiqa-i-hār should be treated with bārid adviḥ first. If the symptoms persist, a Jōshānda of khashkhāsh (Papaver somniferum), banafshah (Viola odorata), and wheat husk is used as a nutāl over the scalp and forehead 17</td>
</tr>
<tr>
<td>(Migraine)</td>
<td></td>
</tr>
<tr>
<td><strong>Sarsām</strong></td>
<td>A Jōshānda of bānānāh (Matricaria chamomile), Shībt (Anethum sova), Berg-i-reḥān (Ocimum sanctum), banafshah (Viola odorata), gul-i-nargis (Narcissus tazetta) is prepared and mixed with roghan-i-bānānāh, roghan-i-kunjad, roghan-i-bādām and milk and used for nutāl over the forehead 17</td>
</tr>
<tr>
<td>(Meningitis)</td>
<td>Jōshānda of Khashkhāsh as nutāl is recommended to induce mental relaxation and mixed with bānānāh for the resolution of inflammation 8</td>
</tr>
<tr>
<td><strong>Mālānkhāliya</strong></td>
<td>A Jōshānda of shībt (Anethum sova), susan (Iris florentina), bānānāh (Matricaria chamomile), and nakūhānāh (Trigonella uncuta) is recommended as nutāl over the scalp for Mālānkhāliya 5, 17</td>
</tr>
<tr>
<td></td>
<td>A lukewarm Jōshānda of Bānānāh (Matricaria chamomile) nakūhānāh (Trigonella uncuta) barg-i-bādānjanboya (Nepeta hindustana), barg-i-saru (leaves of Cupressus sempervirens), jau al-sara (Fruit of Cupressus sempervirens), flowers of henna (Lawsonia alba), usha (Permeria perlata), berg-i-khubāzī (Malva sylvestris), berg-i-khartmi (Althea officinalis) and wheat husk should be used as nutāl over the head continuously in the patients of Mālānkhāliya Bārid 17</td>
</tr>
<tr>
<td><strong>Sahar</strong></td>
<td>A Jōshānda of banafshah (Viola odorata), Gul-i-Nilofar (Nelumbium speciosum), Gul-i-Gulāb (Rosa centifolia), Tukhm-i-Kāhu (Lactuca sativa Linn), Kishnīz Sabz (Cupressus semipervirens), Khatmi (Althea officinalis), and Jau (Hordeum vulgare) is considered effective as a nutāl in the forehead in the patients of insomnīa.</td>
</tr>
<tr>
<td>(Insomnia)</td>
<td></td>
</tr>
<tr>
<td><strong>Nisāyān</strong></td>
<td>A Jōshānda of bābūnah (Matricaria chamomile), nakūhānāh (Trigonella uncuta), qurtum kofta (Carthamus tictorious, ground), Tukhm-i-khartmi (Althea officinalis seeds) or berg-i-khartmi (leaves of Althea officinalis) is recommended for nutāl over the scalp 17</td>
</tr>
<tr>
<td>(Anemia)</td>
<td></td>
</tr>
<tr>
<td><strong>Fālīj</strong></td>
<td>A hot mixture of Sirka and roghan-i-gul is recommended for the patient of falij as a nutāl.</td>
</tr>
<tr>
<td>(Hemiplegia)</td>
<td></td>
</tr>
<tr>
<td><strong>Dawār</strong></td>
<td>A Jōshānda of bābūnah (Matricaria chamomile), Nākhūnah (Trigonella uncuta), Marzanjosh (Origanum majorana) saʿtar (Thymus serpyllum), and rehān (Ocimum basilicum) is recommended as nutāl for the patients of vitīlgo 17</td>
</tr>
<tr>
<td>(Vertigo)</td>
<td></td>
</tr>
<tr>
<td><strong>Sara</strong></td>
<td>A Jōshānda of Bābūnah (Matricaria chamomile), Nākhūnah (Trigonella uncuta), and Marzanjosh (Origanum majorana) is recommended as nutāl in the cases of epilepsy 17, Shībt (Anethum sova) and Branjasif (Artemisia abrotanum) may also be added 19.</td>
</tr>
<tr>
<td>(Epilepsy)</td>
<td></td>
</tr>
<tr>
<td><strong>Mānīa</strong></td>
<td>A Jōshānda of bānafshah (Viola odorata), nilofar (Nelumbium speciosum), gul-i-khartmi (Althea officinalis), sweet basil (Ocimum basilicum), jau (Hordeum vulgare), berg-i-baids (Salix alba), Gul-i-Gulāb (Rosa centifolia), Berg-i-Kāhu (Lactuca sativa), Berg-i-Makoh (Solanium nigrum) is used for the patients of mania 9, 17</td>
</tr>
<tr>
<td><strong>Dhāt-ul-janb</strong></td>
<td>Nutāl of warm water is prescribed on the affected site which gives relief in pain 17.</td>
</tr>
<tr>
<td>(Pleurisy)</td>
<td></td>
</tr>
<tr>
<td><strong>Warm-i-Mathānā</strong></td>
<td>Nutāl with Roghan-i-Gul (Rose oil) is found useful if done on the pelvic region 17.</td>
</tr>
<tr>
<td>(Cystitis)</td>
<td></td>
</tr>
<tr>
<td><strong>Ḥisāt-t-Kulliyya</strong></td>
<td>A Jōshānda of gul-i-teisu (Butea monosperma), gul-i-kasam (Carthamus tictorious), tukhm-i-kharpázā (Cucumis melo), tukhm-i-khāyārān (Cucumis sativus seed), khār-i-khasak (Tribulus terrestris) is prepared and poured over the site of pain 9, 17.</td>
</tr>
<tr>
<td>(Renal Stone)</td>
<td></td>
</tr>
<tr>
<td><strong>Ḥisāt-i-Mathānā</strong></td>
<td>A Jōshānda of bābūnah (Matricaria chamomile), nakūhānāh (Trigonella uncuta), khartmi (Althea officinalis), and wheat husk is recommended over the pelvic region for Ḥisāt-i-Mathānā 17.</td>
</tr>
<tr>
<td>(Urinary Bladder Stone)</td>
<td></td>
</tr>
<tr>
<td><strong>Waja-ul-Mafṣīl</strong></td>
<td>A Jōshānda of makoh (Solanium nigrum) and khār-i-khasak (Tribulus terrestris) is recommended and followed by dalik-i-iqayin of the affected area or joint with Roghan-i-Gul 5.</td>
</tr>
<tr>
<td>(Arthrāgia)</td>
<td></td>
</tr>
<tr>
<td><strong>Warm-i-Sadī</strong></td>
<td>A Jōshānda of bābūnah (Matricaria chamomile), shībt (Anethum sova), huba (Trigonella foenum graecum), qaisām (Artemisia absinthium) and Fund baidastar (Castoreum) is advocated as nutāl over the affected area 5.</td>
</tr>
<tr>
<td>(Mastitis)</td>
<td></td>
</tr>
</tbody>
</table>
4. DISCUSSION

Nutāl or irrigation is done with a purpose of acceleration of process of ikhrāj-i-mawād (evacuation of morbīd material) and taḍāl-i-mizāj-i-A‘zā (normalization of Altered Temperament of organ) and to improve the qawat-i-muḍāfāt (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. Nutāl has multidirectional effects including tahrīk-i-a‘ṣāb (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 imālā-i-mawād-i-fāsīda towards the periphery or away from the diseased organs. In the case of nutāl-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. Nutāl is effective by having mūssakīn-i-alām (analgesic), mukhādīr (sedative), muraṭīb (emollient), mubārīd (cold), mūnāvīr (hypnotic), muqawwī dimag (brain tonic) properties (figure 2) [10,12,21].

Relaxation induced by nutāl therapy is reflected by bradycardia and lowered sympathetic tone. Sympathetic relaxation results in increasing blood circulation and skin temperature [22]. Nutāl 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 [23,24].

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 nutāl for about 45 minutes. Further, to achieve the permanent effect of nutāl, 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 [25].

Several studies were conducted to evaluate the efficacy of nutāl 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:

Nutāl 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. Nutāl 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 nutāl 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 nutāl 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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