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# Clinical study to evaluate the efficacy of *Shiro Abhyanga* in *Nidranasha* w.s.r. to Insomnia

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## ABSTRACT

*Nidranasha* is one of common disorder which affects the quality of life. *Acharya Charaka* has mentioned *Nidra* as one among the *Trayo upastambha*. which is an essential factor to lead a healthy life. Further he mentions *Sukha, Dukha, Pushti, Karshya, Bala, Dourbalya, Purushatva, Klaibyata, Jnaana, Ajnaana, Jeevitha* and *Mriyu* all are depended on proper and improper Sleep. *Nidranasha* is one among the *Vataja Nanatmaja Vyadhi*. In *Nidranasha Shiroabhyanga* is the one of the effective treatment. *Abhyanga* means the application of *Sneha*, suitable to one's constitution, age, season, particular disease and atmosphere. *Shiro Abhyanga* is a *Bahirparimarjana Chikitsa* and are also a part of *Dinacharya*, is told to be beneficial in inducing *Nidra*. For clinical study total 15 patients were registered from O.P.D. and I.P.D. of K.V.G. Ayurveda Medical College and Hospital, Ambatedka. Result of the study revealed that *Shiro Abhyanga* effective in reducing the sign & symptoms of Insomnia as well as physical assessment.

**Key words:** *Nidranasha, Insomnia, Shiro Abhyanga.*

## INTRODUCTION

Panchakarma presents a unique approach of Ayurveda in promotive, preventive and curative aspects. It is a comprehensive and an integral part of Ayurvedic treatment and has its role in every therapeutic condition. Due to its long lasting and radical relief of chronic diseases, it is now developing globally presents an approach of Ayurveda with specially designed five procedures of internal

purification of the body through the nearest possible route. The ancient *Acharyas* of Ayurveda considered *Nidra* among the three *Upastambhas* for the maintenance of the living organism.<sup>[1]</sup> While discussing about *Nidra* and *Nidranasha* in the context of *Astauninditiya Adhyaya*, *Acharya Charaka* has stated that happiness and sorrow, growth and wasting, strength and weakness, virility and impotence, the knowledge and ignorance as well as existence of life and its cessation depend on the sleep. According to him, *Nidra* is *Pushtida* and *Jagarana* (*Nidranasha*) does the *Karshana* of the body. Untimely and excessive sleep and prolonged vigil take away both happiness and longevity, like the night of destructions.<sup>[2]</sup> In modern parlance it simulates Insomnia which is characterized with difficulty in initiating or maintaining sleep, waking up too early and unable to sleep again, or waking up with a feeling of lassitude and lethargy. Daytime impairment is often the main reason individuals with insomnia seek treatment. Approximately 20% of patients seen by primary-care physicians report significant sleep

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disturbances.<sup>[3]</sup> Insomnia affects all segments of the population, including children and the elderly. While precise estimates vary as a function of definitions and methodology, approximately 40% of adults ( $\geq 18$  years of age) report at least 1 symptom of insomnia 3 times per week, 20% are dissatisfied with their sleep, and about 10%-13% meet criteria for an insomnia disorder.<sup>[4,5]</sup> Allopathic hypnotic drugs are useful for short term treatment in Insomnia which is due to acute stage. In Ayurveda, *Abhyanga* means the application of *Sneha*, suitable to one's constitution, age, season, particular disease and atmosphere. *Shiro Abhyanga* is a form of *Bahirparimarjana Chikitsa* and are also a part of *Dinacharya*, is told to be beneficial in inducing *Nidra*. Hence the same has been employed in the present study. In *Charaka Samhita* it is mentioned that *Shiro Abhyanga* helps to promote *Nidra*, prevents headache, greying, hairfall and it also gives strength to skull, strengthens hair root and makes the hair black and long. It also nourishes the sense organs, softens the skin and provides lustre to face and one gets good sleep after *Shiro Abhyanga*.<sup>[6]</sup> *Tungadrumadi Taila*<sup>[7]</sup> is mentioned to be beneficial in *Nidranasha* as ingredients of *Tungadrumadi Taila* are having *Shita Virya*, *Snigdha Guna*, *Vata-pittahara* property and has *Karmukata* as *Akshitarpaka*, *Snehana* and *Nidrajanaka*. Hence in this study *Tungadrumadi Taila* was chosen for the purpose of *Shiro Abhyanga*. This study was designed to evaluate the efficacy of *Shiro Abhyanga* with *Tungadrumadi Taila* in *Nidranasha* w.s.r. to Insomnia.

## AIMS AND OBJECTIVES

1. To evaluate the efficacy of *Shiro Abhyanga* with *Tungadrumadi Taila* in *Nidranasha*.
2. To study the mode of action of *Shiro Abhyanga* in *Nidranasha*.

## MATERIALS AND METHODS

**Sample size:** 15 Patients suffering from *Nidranasha* were selected from O.P.D and I.P.D of Panchakarma and Kayachikitsa Departments and also from mobile camps of K.V.G. Ayurveda Medical College and

Hospital, Sullia after fulfilling the inclusion and exclusion criteria.

**Drug source:** Raw drugs for *Tungadrumadi Taila* were collected and prepared in K.V.G. Ayurveda Pharma, Sullia.

**Table 1: Showing the ingredients of *Tungadrumadi Taila*<sup>[8]</sup>**

SN	Ingredients	Quantity
1.	<i>Yastimadhu</i>	125gm
2.	<i>Chandana</i>	125gm
3.	<i>Usheera</i>	125gm
4.	<i>Neelotpala Kanda (Ardra)</i>	250gm
5.	<i>Shati</i>	125gm
6.	<i>Tila Taila</i>	5ltr
7.	<i>Narikela Jala</i>	20ltr
8.	<i>Ksheera</i>	2ltr
9.	Water	20ltr

## Selection Criteria

### Inclusion Criteria

- Patients presenting with the *Lakshanas* of *Nidranasha*.
- Patients above 18 and below 60 yrs. of age.
- Patients of both genders are included.

### Exclusion Criteria

- Patients below 18 and above 60 yrs. of age.
- Patients who are unfit for *Abhyanga* according to Ayurveda classics.<sup>[15]</sup>
- Patients who are suffering from other systemic diseases which interferes with the course of treatment.

**Diagnostic Criteria:** The diagnosis is based on the classical signs and symptoms of *Nidranasha* such as

Angamarda, Shirogurava, Jadya, Glani, Jrumba, Bhrama and Apakti.

### TREATMENT PROTOCOL

**Shiro Abhyanga with Tungadrumadi Taila:** 15 patients fulfilling the inclusion criteria were randomly selected and *Shiro Abhyanga with Tungadrumadi Taila* for seven days was given.

#### Method of Shiro Abhyanga

**Requirements:** Comfortable knee high chair. Bowl of 100ml capacity to take oil., *Tungadrumadi Taila* for application, Water bath for heating oil, Bengal gram powder for cleaning oil.

**Poorva Karma:** The patient was made to sit on a knee high chair. The body of the patient was wrapped with a cloth below the neck, then the procedure was followed by standing behind the patient; it is the ideal position to perform *Shiro Abhyanga*.

**Pradhana Karma:** The technique includes smearing the oil to the portions of the scalp above the neck and placing specific strokes. The oil was first heated on a water bath until it became *Sukhoshna* i.e., near about to body temperature. Then the oil was applied in to the head of the patient and spread all over the head including the neck and ear pinna. To spread the oil on the scalp has short trimmed hair; moving the palms from before backwards is enough. If the patient has long hair then the fingers have to be poked between the hairs to smear the oil to the scalp. *Shiro Abhyanga* include flowing stapes.

- a) Gharshana Hasta (Massage from before backwards)
- b) Mridvanguli Tadana (Picking strokes)
- c) Dvihasta Tadana (Flat palm strokes)
- d) Taranga Hasta (Rocking strokes)
- e) Anguli Kridana Hasta (Finger strokes)
- f) Mridu Mushti Tadana (Fist stroke)
- g) Squeeze strokes
- h) Ghatita Hasta (Pressing)
- i) Karna-Abhyanga (Ear massage)

**Duration:** Each form of stroke and each step were continued for about 4 to 5 minutes and in this way the whole process of *Shiro Abhyanga* took about 30 to 40 minutes.

**Paschath Karma:** After following this procedure; the patient was asked to rest on the chair for about 15-30 minutes and then advised to take head bath with hot water. Instead of soap, flour of the Bengal gram was used cleanse the oil.

**Follow-up study:** The patient was asked to follow a *Pariharakala* of 14 days and was asked to report on 21<sup>st</sup> day counting from the day the treatment schedule started. On the 21<sup>st</sup> day the final assessment readings were taken for the Statistical study.

**Posology:** As per classics there is no standardized dosage for oil used for *Abhyanga*. Quantity sufficient oil was used for *Shiro abhyanga*. In this study 25-30ml oil used.

#### Assessment Criteria

##### Subjective Criteria

- a) Angamarda
- b) Shirogurava
- c) Jrumba
- d) Jadya
- e) Glani
- f) Bhrama
- g) Apakti

**Objective Criteria:** Inscoring the PSQI, seven component scores are derived, each item is scored from 0 (no difficulty) to 3 (severe difficulty). The component scores are summed to produce a global score (range 0 to 21). Higher scores indicate worse sleep quality.

##### Interpretation of scores:

- 0-7 - No clinically significant Insomnia.
- 8-14 - Sub threshold Insomnia.

- 15-21 - Clinical Insomnia of moderate severity.
- 21-28 - Severe clinical Insomnia.

**Global PSQI Score:** Sum of seven component scores: Assessments of the condition of the patient were done before the initiation of the treatment (0day), during 8<sup>th</sup> day of the treatment and on the last day of the treatment (21<sup>st</sup> day).

**Statistical analysis:** Appropriate statistical methods viz., Descriptive Statistics, Wilcoxon and Friedman’s test were employed for the data collected and analyzed and Mann Whitney’s Test was used to evaluate the difference between results of two groups.

**Table 2: Showing over all assessment of clinical response.**

Complete relief	100% relief in sign and symptoms of <i>Nidranasha</i>
Marked relief	75-99% relief in signs and symptoms of <i>Nidranasha</i>
Good relief	50-75% relief in signs and symptoms of <i>Nidranasha</i> .
Moderate relief	25-50% relief in signs and symptoms of <i>Nidranasha</i> .
Mild relief	1-25% relief in signs and symptoms of <i>Nidranasha</i> .
No relief	0% No change in signs and symptoms of <i>Nidranasha</i> .

**OBSERVATIONS AND RESULTS**

**Table 3: Effect of on symptoms of *Nidranasha***

Symptom	Mean Rank	IQ Range	Mean Rank	IQ Range	Improvement (Wilcoxon)	Significance (Friedman’s test)
B.T	2.97	0	B T-A T	8 0	65.8	<0.001
A.T	1.37	1	A T-	2.5 1	-40	<0.001

			F U			.2	
F.U	1.67	0	B T-F U	7.5 0		51.8	<0.001

The Mean Rank of symptoms before treatment is 2.97 with the Inter Quartile range of 0 and after treatment the Mean Rank became 1.37 ( IQ Range of 1 ) and after follow up Mean Rank is 1.67 and using Friedman’s Test the difference is highly significant ( i.e. p <0.001 ). The improvement after treatment was found to be 65.8% with P <0.001 which is highly significant. After follow up the improvement was 51.8% and it is highly significant.

**Table 4: Showing the result of subjective sleep quality**

C1	Mean Rank	IQ Range	Mean Rank	IQ Range	Improvement (Wilcoxon)	Significance (Friedman’s Test)
B.T	3	1	B T - A T	8 1	76.3	<0.001
A.T	1.37	1	A T - F U	0 1	45.5	<0.001
F.U	1.63	0	B T - F U	8 3	66	<0.001

The Mean Rank of C1 before treatment is 3 with the Inter Quartile range of 1 and after treatment the Mean Rank became 1.37 (IQ Range of 1) and in after followup Mean Rank 1.63 and using Friedman’s Test is highly significant (i.e. <0.001). The improvement after treatment was found to be 76.3% with P <0.001 which is highly significant. After follow up the improvement was 66% and it is highly significant.

**Table 5: Showing the result of Global PSQI**

	Mean Rank	IQ Range	Mean Rank	IQ Range	Improvement (Wilcoxon)	Significance (Friedman’s test)
B.	3	3	B T	8 3	57.	<0.0

T			- AT			5	1	<0.001
A. T	1.33	6	AT - F U	5	6	- 8.7	>0.0 5	
F. U	1.67	5	BT - F U	8	5	54	<0.0 1	

The Mean Rank of symptoms before treatment is 3 with the Inter Quartile range of 3 and after treatment the Mean Rank became 1.33 ( IQ Range of 6 ) and in after follow up Mean Rank 1.67 and using Friedman's Test is highly significant ( i.e. <0.001 ). The improvement after treatment was found to be 57.5% with P<0.01.

**Table 6: Showing the overall result of Nidranasha**

Tot al sco re	Me an Ran k	IQ Ran ge		Me an Ran k	IQ Ran ge	Improvem ent (Wilcoxon	Significa nce (Friedma n's test)
B.T	3	4	BT - A T	8	4	58. 5	<0.0 1
A.T	1.33	7	A T - F U	3	7	-12	<0.0 5
F.U	1.67	5	BT - F U	8	5	53. 5	<0.0 1

The Mean Rank for the *Nidranasha* is found to be 3. After treatment it is 1.33 with the improvement of 58.5% where as after follow up the improvement was 53.5% with the Rank of 1.67 and it is found to be highly significant ( <0.01 ).

## DISCUSSION

*Nidra*, one among the three Upastambhas, for the maintenance of the life.<sup>[9]</sup> While discussing about

*Nidra* and *Nidranasha* in the context of Astaunindaniya Adhyaya, it is stated that Sukha and Dukha, Pushti and Karshya, Bala and Abala, Vrishata and Klibata, jnana and Ajnana depend on the sleep.<sup>[10]</sup> Moreover *Nidra* is Pushtida and Jagarana or *Nidranasha* does the Karshana of the body. *Nidranasha* can be correlated with Insomnia described in Modern medical science by the similarity of the sign and symptoms. Since the conventional anxiolytic and sedative drugs have limited application due to hangover effects, addiction and producing variety of neuroendocrine, hepatic side effects. Such drugs also badly influences the cognitive performance particularly memory and attention of the individual therefore such agents can't be given for a longer period. Even in Ayurveda the drugs are sometimes not very palatable and comfortable. Therefore external therapeutic measures can be used, Bahya Snehana like Shiroabhyanga can be easy as therapeutic measure. The *Abhyanga* exhibits its action basically on three systems of blood vascular system, Nervous system, and Lymphatic system. By fine touch and crude touch, *Abhyanga* stimulates the tactile receptors and mechano-receptors in the skin. The temperature in the skin increases thus causes kinetic motion in the receptors by which the axons get activated and conducts stimulus through first, second and third order of neurons to the sensory cortex in turn maintains the normal homeostasis of the body by exhibiting neuronal action. In this study Kharapaka *Tungadrumadi Taila* was prepared as per the procedure mentioned in Sharangdhara Samhita and it was used for *Shiro Abhyanga*. In subjective parameters after treatment improvement was found to be 65.8% and after follow up improvement was 51.8% and it is highly significant. In Global PSQI score, It is observed that, the effect of therapy on Sleep Quality, Sleep Latency, Sleep Duration, Habitual Sleep Efficiency, Sleep Disturbances, Use of Sleep Medications, and Day time Dysfunction, after treatment improvement was found to be 57.5% and after follow up improvement was 54% and it is highly significant. In overall results of *Nidranasha* It is observed that, after treatment improvement was

found to be 58.5% and after follow up improvement was 53.5% and it is highly significant.

#### Probable mode of action of *Shiro Abhyanga*

Bhrajaka Pitta is located in the Twak. Sushruta says that the Bhrajakagni enables the digestion and utilization of substances used for *Abhyanga*, Parisheka, Avagaha, Lepana etc. and there by the beneficial effects of the medicament is achieved by the body. Ingredients of *Tungadrumadi Taila* are having Shita Virya, Snigdha Guna, Vatapittahara property and has Karmukata as Akshitarpaka, Snehana and Nidrajanaka. So *Tungadrumadi Taila* can act beneficial in *Nidranasha*. The *Abhyanga* is exceedingly beneficial to the skin, so one should practice it regularly.<sup>[11]</sup>

**Procedural effect:** To discuss Procedural effect of *Shiro Abhyanga* karma, it divided in to three steps

1. Penetration
2. Stimulation
3. Relaxation

**1. Penetration:** Sukshma Indriyas resides in Mastishka and Sneha ingredients enter by penetration in the skin of head. The Penetration power is depended on consistency and density of drugs. In this study *Tungadrumadi Taila* has greater penetration power (luke warm), as Tila *Taila* has lipid constitution which can be penetrated easily through cell walls. So, it can be said that *Shiro Abhyanga* is more beneficial.

**2. Stimulation:** To reach the central nervous system, a drug must have a high degree of lipid solubility (high oil / water partition coefficient) or a specialized transport mechanism. After penetration, it can be said it stimulates CNS. *Shiro Abhyanga* directly influences the release of melatonin which induced Nidrajanana Property. According to modern physiology, drugs may act directly on neurons and modify the neuronal functions. They may act reflex by sending afferent impulses to the central nervous system via the chemoreceptors, baroreceptors and peripheral

nerves and there by eliciting psychic, somatic or visceral responses. They may affect the nutrition and oxygen supply of the CNS by altering its blood supply or affecting its metabolism.

**3. Relaxation:** In *Shiro Abhyanga*, patients feel relaxation both physically as well as mentally. Relaxation of the frontalis muscle tends to normalize the entire body and achieve a decrease activity of SNS with lowering of brain cortisone and adrenaline level; synchronizes the brain wave (alpha waves) strengthens the mind and spirit and this continues even after the relaxation.

Whether, *Shiro Abhyanga* directly influence the release of melatonin – a hormone responsible to induce sleep require further studies. Moreover, supine position also helps in relaxation. It is known that pituitary gland is the master gland of endocrine system which responds to stress, anxiety etc. Moreover, *Shiro Abhyanga* regulates functions of neuroendocrine system by its penetrating effects and causes the relaxation at all levels. Imbalance of Prana, Vyana Vayu and Sadhaka Pitta can produce stress and tension. *Shiro Abhyanga* establishes the functional integrity between these three subtypes of Doshas through its mechanical effects. *Shiro Abhyanga* works on cerebral system helps in relaxing the nervous system and balancing the Prana Vayu around the head. It improves the function of five senses, helps in insomnia, stress, anxiety, depression, hair loss, fatigue, imbalance of Vata and makes one calm and fresh accompanied by distress or impairment in day time functioning.

#### CONCLUSION

The disease *Nidranasha* and Insomnia are similar in their etiology, signs and symptoms. In case of *Nidranasha*, the drug having Vatapitta properties should be administered. Keeping this in consideration *Tungadrumadi Taila* is used for purpose of both *Shiro Abhyanga*. *Shiro Abhyanga* is having prolonged action as it is having highly significant during post follow up of treatment. It is one of the safe, cost effective and easy remedy for the disease *Nidranasha*.

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