

Efficacy of *Dashmoola Taila Dhara* & *Jala Dhara* in Management of Insomnia

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ABSTRACT

Due to a hectic lifestyle in modern era, various psychological problems are tremendously increasing in human beings and insomnia is one of them. Insomnia is a condition in which there may be difficulty in sleeping, frequent or sustained awakening or early morning awakening. According to various studies it is estimated that at least 10-20 % population suffering from insomnia and this number is increasing continuously. Present study shows that *Dashmoola taila dhara* & *Jala dhara* are effective in the management of *Anidra* (insomnia) and other accompanying symptoms such as yawning, drowsiness, malaise, fatigue, lack of concentration, poor memory, and loss of lustre. With these treatments, all the patients developed a feeling of well being, without having any side-effects.

Key words: *Anidra, Dashmoola Taila dhara* Insomnia, *Jala dhara*

INTRODUCTION

Ayurveda considers *Nidra* (sleep) as one of the most important part of life, i.e. *Trayopastambha* (the tri sub-pillars of life).^[1] Acharya Charaka has defined it as that happiness & misery, proper growth and emaciation of body, good strength & weakness, virility & sterility, knowledge & ignorance, the life & death of as individual these all factors depend on proper & improper sleep that one takes.^[2] The importance of sleep is also well accepted by modern science, mainly because of its restorative functions and importance in conservation of energy & growth.

Nidra is an outcome of relaxed mental state. So whenever the functions of *mana* (~psyche) are disturbed, the sleep also becomes disturbed. *Anidra* (Insomnia), a condition of inadequate quality and quantity of sleep may be a symptom of stressful lifestyle, depressive illness, anxiety disorder and any psychological conditions or any other pathological conditions. Today's competitive & stressful era has produced several psychological disturbances in human beings. It has been estimated that at least 10-20 % of the population is suffering from insomnia and in 15 % of these, the causes are unknown.^[3] In developed western countries, it is affecting nearly 1/3rd of the population, whereas in the developing countries as India and the incidences are further increasing day by day in the younger and middle age group. A population based survey conducted in Delhi had shown that 4% males and 2.5% females suffer from obstructive sleep apnoea.^[4] As insomnia has emerged as

a major health hazard, the attention of professionals and researches all over the world is now increasingly being drawn on this particular problem. During the description of *Nidra*, *Acharyas* have mentioned that *Sharirika Dosha Kapha*, *Manasika Dosha Tama*, *Chetana Sthana Hridaya* (heart), *Mana* and *Sanjnavaha Srotasa* are responsible for its production. Hence it is evident that the *Vata Dosha*, *Pitta Dosha*, *Rajo guna*, *Hridaya Mana* and *Sanjnavaha Srotas* play an important role in the formation of *Samprapti* or pathogenesis of *Anidra*. Thus vitiation of these factors leads to the disease of *Anidra*.

Need for Study

For the treatment of *Anidra*, various types of anxiolytic, sedatives, and tranquilizers are being used by modern physicians. Constant use of these drugs for long times induce hangover effects, addiction and a variety of neuroendocrine and hepatic side effects.^[5] Therefore, there is an urgent need of some safer remedies for the management of insomnia.

Acharya Charaka has considered *Vata Dosha* as a chief controller and stimulant of mind.^[6] Stressors such as *Chinta*(anxiety), *Shoka* (grief), *Bhaya* (fear), *Krodha* (anger) and other disturbed *manasabhava* (objects of mind), play an important role in causing *Anidra*. Although *Charak* has given a good description of *Anidra* as a disease, in the chapter *Ashtouninditiya adhyaya*, but he has not described the principles of its treatment in *Chikitsa Sthana*.

Ayurveda has a very good approach towards the treatment of *Anidra* through both internal and external medications, which act by correcting the disturbed mental faculties and pacifying the provoked *Vata Dosha*. One such external therapeutic procedure, *Shirodhara* is in fact a variety of *Moordhani Taila* (application of oil on the head).

^[7] It is a cost effective, potent panchakarma procedural based external medication therapy of Ayurveda, used to pacify all kinds of

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stressors by inducing the state of tranquillity which leads to deep relaxation, which ultimately helps in the normalization and stabilization of *mansabhava*. Considering all above facts, an effort was made to evaluate efficacy of *Dashmoola Taila Shirodhara* and *Jala Shirodhara* (*Jala dhara*) in *Anidra*.^[8]

Aims and Objectives of this study

- Conceptual and clinical studies on *Anidra* w.s.r. to insomnia and its management with times tested Ayurvedic principles.
- To establish the Ayurvedic treaties in the management of *Anidra*.
- To establish the *Nidrakara* (anti-insomniac) effect of *Dashmoola taila dhara* and *Jala dhara* in the patients suffering from insomnia.
- To compare the efficacy of *Nidrakara* effects of *Dashmoola Taila dhara* and *Jaladhara*.

MATERIALS AND METHODS

Selection of cases

20 clinically diagnosed patients of *Anidra* were selected from OPD / IPD unit of PG Department of *Panchakarma*, HAMCH, Dehradun. A regular record of the assessment of all patients was maintained on a performa prepared for the purpose. Written informed consent was obtained from each patient prior to the study.

Inclusion criteria

- Individuals between the age group of 16 to 60 years of both sexes, suffering from *Anidra* for a minimum of one month duration were selected randomly for the study.
- Insomnia with mild hypertension, mild depression and anxiety, but without any other complications or diseases.

Exclusion criteria

- Patients below 16 years and above 60 years of age.
- Patients with major psychiatric illness like schizophrenia, depressive psychosis, epilepsy.
- Patients with alcohol dependency or drug dependency were excluded from the study.
- Patients having chronic illness like asthma, malignancies, liver cirrhosis, chronic renal failure, diabetes.
- Patients with acute illness like CVA, CCF, MI, COPD, meningitis, acute pain conditions and similar other disorders.

Pre treatment observations

These details of the patients were noted on the registration performa:

- Their demographic profile including their age, sex, address, occupation, education, socio economic status, marital status, life style, addictions and dietary habits.
- Their detailed case history and physical, general and systemic examination was noted, with a focus on mental status examination.

- The classical Ayurvedic *Ashtavidha* and *Dashvidha pariksha* (eight & tenfold method of patient examination), including assessment of *Sharirika prakriti* (physical nature) and *Manasika prakriti* (mental nature).

Administration of drug and treatment schedule

20 registered, clinically diagnosed and confirmed patients of *Anidra* were selected for the present clinical trial and randomly divided into following two groups of 10 patients each.

Group I: 10 patients were administered *Dashmoola Taila dhara*, for a period of 15 days, with approximately 45 minutes in every sitting.

Group II: 10 patients were administered *Jala Dhara* for a period of 15 days, for approximately 45 minutes in every sitting.

All the patients were advised to undergo following laboratory investigations (if needed) before starting the trial to rule out any other illness if present and to exclude them from the trial.

- Blood - Routine hematological examinations
- Urine - Routine and microscopic examination

Follow up

Just after completion of treatment, patients were followed for duration of 1 month. All the 20 patients completed the trial.

Criteria of assessment

Both subjective and clinical improvements were employed for assessment of the impact of therapy. Subjective criteria of evaluation included both, the observations of patients and assessment by the physician. Statistical analysis of the pre treatment observations and post treatment recovery was done.

A. Subjective improvement

All the registered patients were specially asked to report for any changes or improvement in their feeling of well being and physical or mental fitness following the therapy.

B. Clinical improvement

All the symptoms taken for the assessment of clinical improvements were thoroughly examined and the severity of each symptom was rated before and after the trial.

The aforesaid observations were made on seven main symptoms associated with insomnia, along with a specific “sleep diary” assessment. Their severity and post treatment improvement was evaluated by providing points ranging from 0 to 4 (Table 1).

Table 1: Rating scale for various symptoms

S.No.	Symptoms	Grades	Number (points)	Percentage
1.	Nil	-	0	0 %
2.	Mild	+	1	25 %
3.	Moderate	++	2	50 %
4.	Severe	+++	3	75 %
5.	Extremely Marked	++++	4	100 %

The aforesaid scoring was done for each symptom on the basis of following observations:

Score	<i>Jrimbha</i> (Yawning)	<i>Tandra</i> (Drowsiness)
0 =	No <i>Jrimbha</i> in a day	No <i>Tandra</i> after awakening
1 =	one to two times in a day	<i>Tandra</i> which lasts for only for a while after awakening
2 =	four to six times in a day	<i>Tandra</i> in the morning hours
3 =	7-10 times in a day	<i>Tandra</i> till afternoon
4 =	More than 10 times in a day	<i>Tandra</i> throughout the day Till bed time

Score	<i>Angamarda/Angasada</i> (Malaise)	<i>Arati / Klama</i> (Fatigue & inertness)
0 =	No <i>Angamarda / Angasada</i> after awakening	No tiredness after awakening
1 =	<i>Angamarda/Angasada</i> lasting only for a while after awakening	Tired and sluggish for less than 1 hour in the morning
2 =	<i>Angamarda / Angasada</i> in the morning hours	Tired and sluggish for 1-2 hours in the morning
3 =	<i>Angamarda / Angasada</i> till afternoon	Tired and sluggish till noon
4 =	<i>Angamarda / Angasada</i> throughout the day till bed time	Tired and sluggish throughout the day

Score	<i>Manodourbalya</i> (Lack of concentration)	<i>Smritidourbalya</i> (Poor memory)
0 =	Can concentrate in the work more than 1 hour	Memory intact
1 =	Can concentrate in the work upto 1 hour	Occasional forgetfulness, not hampering the activities
2 =	Can concentrate in the work upto ½ hour only	Frequent forgetfulness, mildly hampering the activities
3 =	Can concentrate in the work upto 15 minutes only	Frequent forgetfulness, moderately hampering the activities
4 =	Cannot concentrate at all.	Forgetfulness common, which severely hampers the day to day activities

Score	<i>Kanti kshaya</i> (Loss of luster)
0 =	No change in luster
1 =	Mild loss in luster
2 =	Moderate loss in luster
3 =	Significant loss in luster
4 =	Drastic loss in luster

“Sleep diary” assessment

A “Sleep diary” was provided to each of the registered patients. Through it, the patient was asked to specifically report about the following nine characteristics of sleep:

1. Sleeping time

All the patients were advised to go to bed around 10:00 PM positively and to switch off the light during sleep time.

2. Time interval in getting sleep

0 =	Gets sleep within 30 minutes after going to bed
1 =	Gets sleep within 30 minutes to 1 hour after going to bed
2 =	Gets sleep within 1 hour to 1 ½ hours after going to bed
3 =	Gets sleep within 1 ½ hours to 2 hours after going to bed
4 =	Gets sleep after 2 hours or more after going to bed

3. Sleep interruptions

0 =	No awakening till morning after getting sleep once
1 =	Patient wakes up once at night
2 =	Patient wakes up two times at night
3 =	Patient wakes up three times at night
4 =	Patient wakes up more than three times at night

4. Wakeup time

All the patients registered for the clinical trial were advised to maintain the proper time to get out of bed around 6:00 – 6:30 AM daily.

5. Naps- during day time

0 =	No naps throughout the day
1 =	One nap in a day
2 =	Two naps in a day
3 =	Three naps in a day
4 =	More than three naps in a day

6. Feeling

0 =	Total fresh and active
1 =	Moderate fresh and active
2 =	Mild fresh and mild active
3 =	Somewhat tired and sleepy
4 =	Very tired and very sleepy

7. Irritability

0 =	Nil
1 =	Slight irritation and is relieved within few minutes
2 =	Slight irritation and is relieved within one hour
3 =	Irritation which persists for few hours
4 =	Irritation throughout the day

8. Total Duration of sleep

0 =	6-8 hours of sleep
1 =	5-6 hours of sleep
2 =	4-5 hours of sleep

3 =	3-4 hours of sleep
4 =	Less than 3 hours of sleep

9. Sleep Quality

0 =	Sleep without disturbances
1 =	Sleep with slight disturbances
2 =	Sleep with moderate disturbances
3 =	Sleep with severe disturbances
4 =	No sleep

OBSERVATIONS

Maximum number of patients were male i.e.14 (70%), 10 patients (50%) patients were of age range between 20-30 years and 51-60 years, 15 patients (75%) patients were married, 18 patients (80%) patients were Hindus, maximum number of patients were house wife- 6 patients (30%), 09 (45%) patients were educated at least up to secondary, 12 patients (60%) belonged to middle class and 12 patients (60%) were from urban area.

Maximum number of patients 12 (60%) were of *Vata Pittaja Prakriti*, 16 patients (80%) were *Rajasika*, 13 patients (65%) were of *Madhyama Saara*, 11 patients (55%) had *Madhyama* type of *Samhanana* and 13 (65%) of *Madhayam satva*. 12 patients (60%) had *Madhyama Ahara*, 9 patients (45%) had *Madhyama Vyayama Shakti* and 11 (55%) were of *Kroora kosktha*. Onset was gradual in 100% patients. Regarding *Anindra*, chronicity of more than 1½ years was found in 11 patients (45%), 4 patients (20%) had *Anindra* since six months to one year duration and in 5 patients (25%) illness was present since last six months.

Jrimbha (yawning), *Tandra* (drowsiness), *Arati/Klama* (fatigue), *Manodourbalya* (lack of concentration), *Smritidourbalya* (lack of memory), *Angamarda/ Angasada* (malaise) and *Kanti kshaya* (loss of luster) were the signs found in the patients in the descending order percentage wise 100%, 100%, 93.33, 90%, 76.66%, 76.66% and 73.33. 93.33% patients were found to be anxious and 53.33 % patients were depressed.

RESULTS

Improvement observed in various parameters of *Anindra* was as follows:

Table 2: Pattern of clinical recovery of symptoms in 10 patients of *Anindra* (Insomnia) treated with *Dashmoola taila Shirodhara* in Group I

S. No	Symptoms (n= 10)	Mean		Diff.	Relief %	SD±	SE±	t	p	Result
		BT	AT							
1	<i>Jrimbha</i> (Yawning)	2.6	0.7	1.9	73.0	0.56	0.17	10.58	<0.001	HS
2	<i>Tandra</i> (Drowsiness)	2.8	0.7	2.1	75.0	0.73	0.23	9.00	<0.001	HS
3	<i>Angamarda/An gsada</i> (Malaise)	2.7	0.8	1.9	70.37	0.56	0.17	10.58	<0.001	HS
4	<i>Arati/Klama</i> (Fa	2.9	0.9	2.0	68.96	0.66	0.21	9.48	<0.001	HS

	tigue/Inertness)									
5	<i>Manodourbalya</i> (weak psyche)	3.0	1.0	2.0	66.66	0.66	0.21	9.48	<0.01	HS
6	<i>Smritidourbalya</i> (Poor memory)	2.2	0.8	1.4	63.0	0.69	0.22	6.33	<0.001	HS
7	<i>Kantikshaya</i> (loss of luster)	2.2	0.8	1.6	66.6	0.69	0.22	7.23	<0.001	HS

Table 3: Pattern of recovery in “Sleep Diary” assessment in10 patients of *Anidra* treated with *Dashmoola taila Shirodhara* in Group I

S. No	Symptoms (n = 10)	Mean		Dif f.	Relief %	SD±	SE±	t	p	Result
		BT	AT							
1.	Time interval in getting sleep	2.0	0.6	1	70.00	0.69	0.22	6.33	<0.001	HS
2.	Sleep interruption	2.6	0.7	1.9	73.07	0.56	0.17	10.58	<0.001	HS
3.	Naps-During day time	2.1	0.6	1.5	71.42	0.52	0.16	9.00	<0.001	HS
4.	Feeling	2.7	0.7	2.0	74.07	0.66	0.21	9.48	<0.001	HS
5.	Irritability	2.9	0.8	2.1	72.41	0.87	0.27	7.58	<0.001	HS
6.	Total duration of sleep	2.4	0.5	1.9	79.16	0.56	0.17	10.58	<0.001	HS
7.	Sleep quality	2.1	0.5	1.6	76.19	0.84	0.26	6.00	<0.001	HS

Table 4: Showing the pattern of clinical recovery of symptoms in 10 patients of *Anidra* treated with *Jala Shirodhara* in Group II

S. No.	Symptoms (n = 10)	Mean		Diff.	Relief %	SD±	SE±	t	p	Result
		BT	AT							
1	<i>Jrimbha</i> (Yawning)	2.7	1.1	1.6	59.25	0.73	0.23	9.00	<0.001	HS
2	<i>Tandra</i> (Drowsiness)	2.4	0.9	1.5	62.5	0.52	0.16	9.00	<0.001	HS
3	<i>Angamarda/Angasada</i> (Malaise)	2.6	1.0	1.6	61.53	0.51	0.16	9.79	<0.001	HS
4	<i>Arati/Klama</i> (Fatigue / Inertness)	2.8	1.2	1.6	57.14	0.51	0.16	9.79	<0.001	HS
5	<i>Manodourbalya</i> (Lack of concentration)	1.0	0.5	0.5	50.0	0.52	0.16	3.0	<0.05	S
6	<i>Smritidourbalya</i> (Poor memory)	1.1	0.6	0.5	45.4	0.52	0.16	3.0	<0.05	S
7	<i>Kantikshaya</i> (loss of luster)	1.9	0.8	1.1	57.89	0.31	0.10	11.00	<0.001	HS

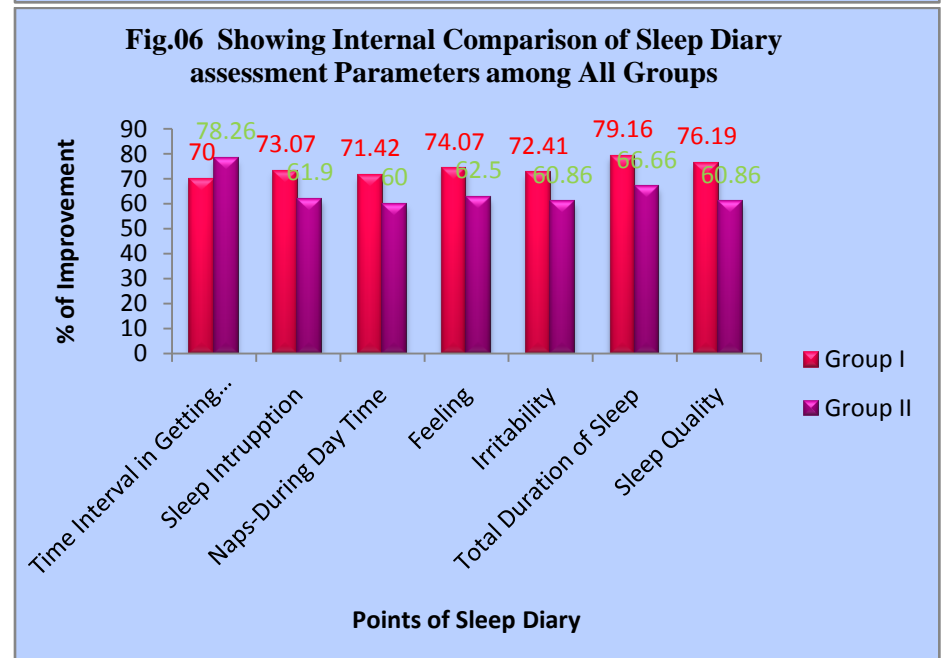
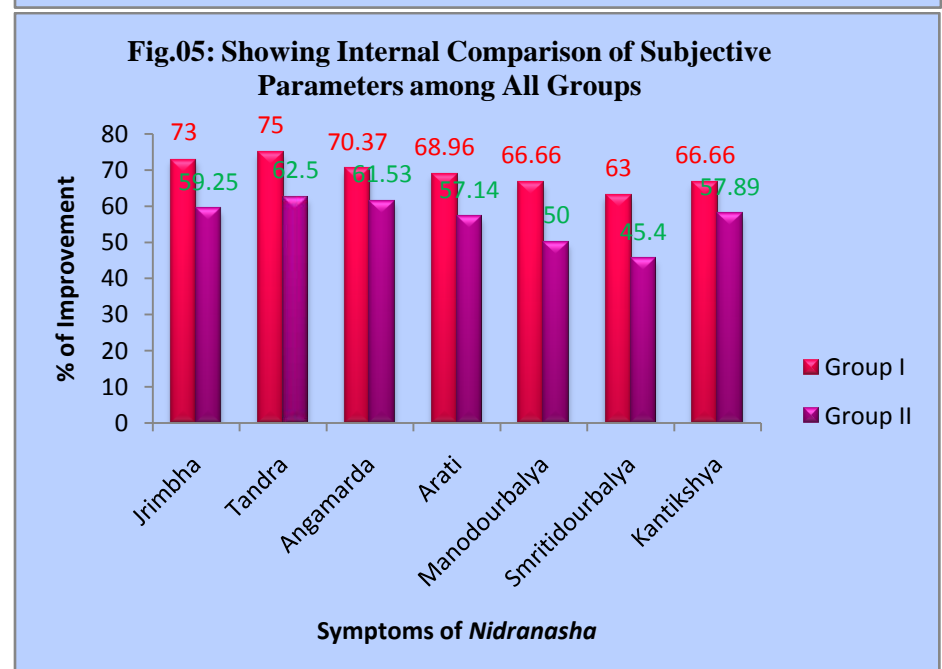
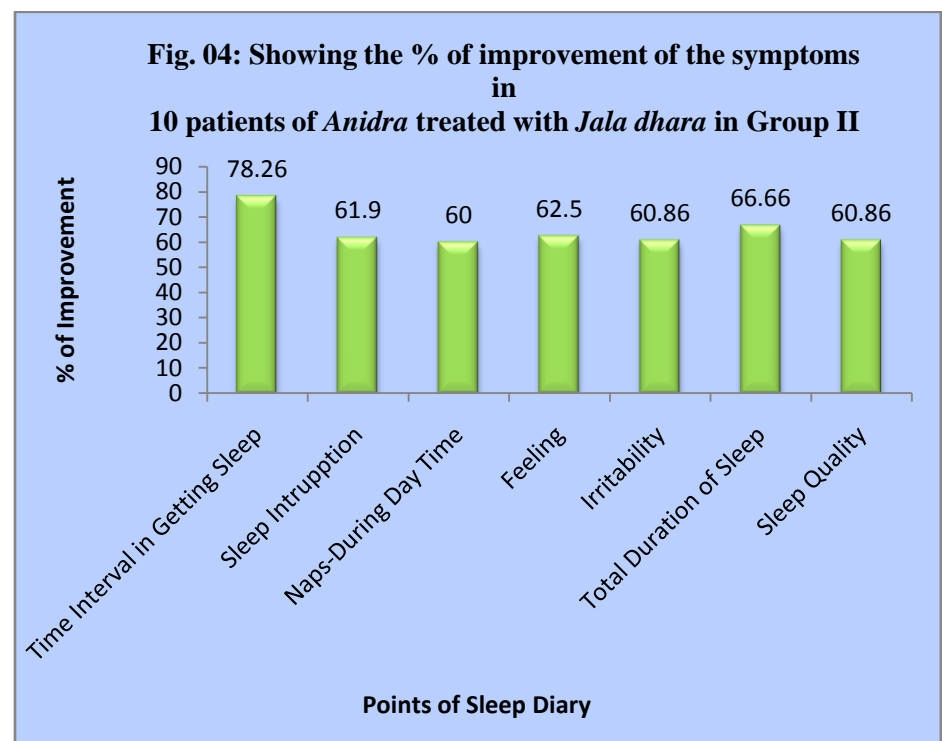
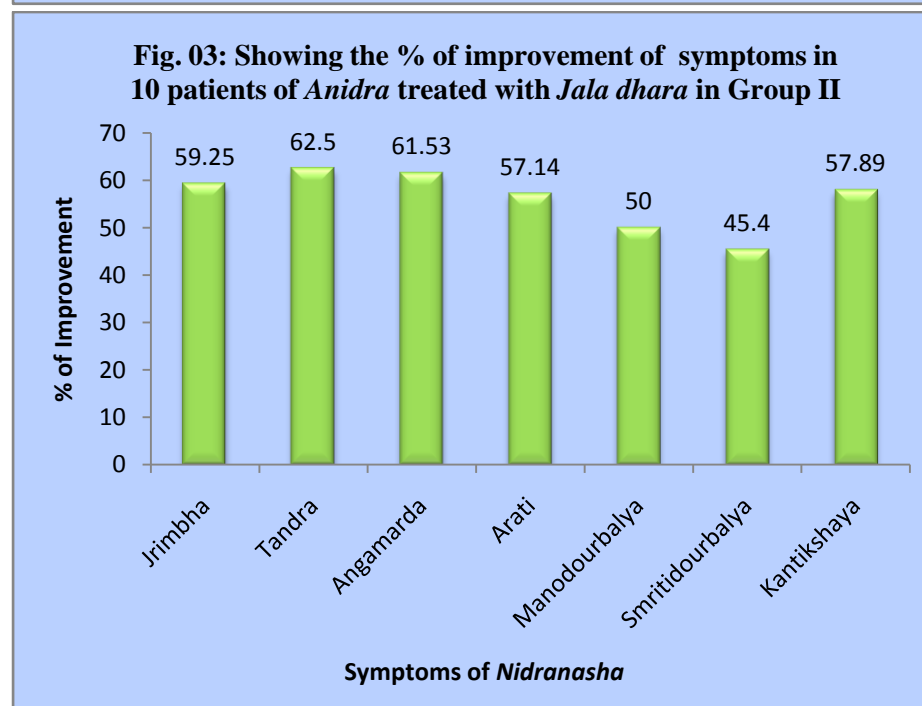
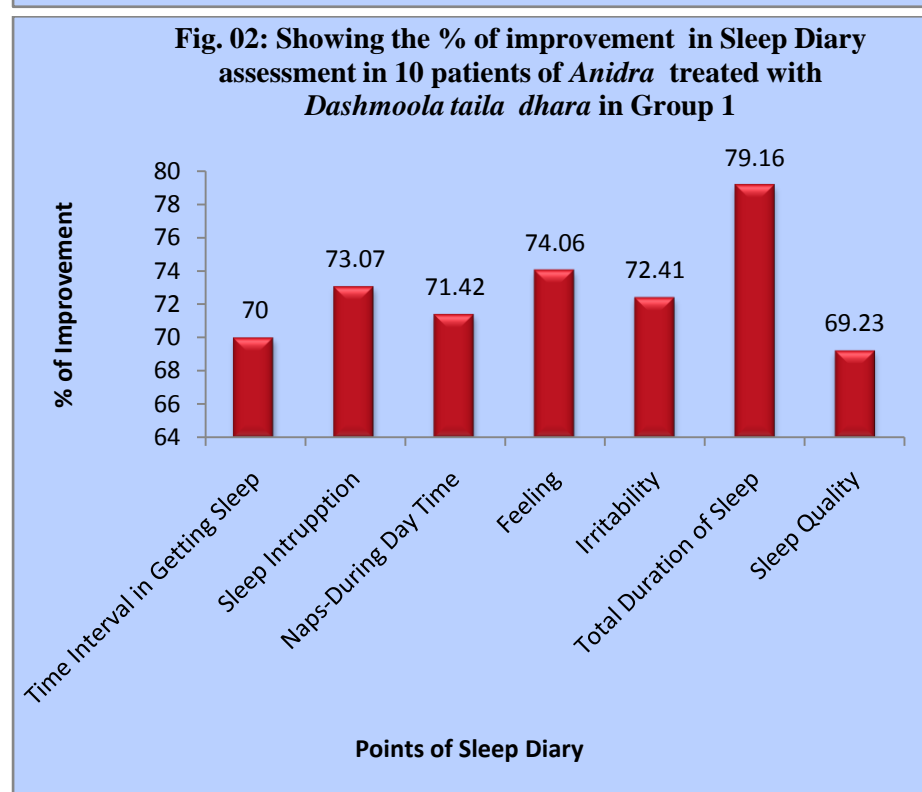
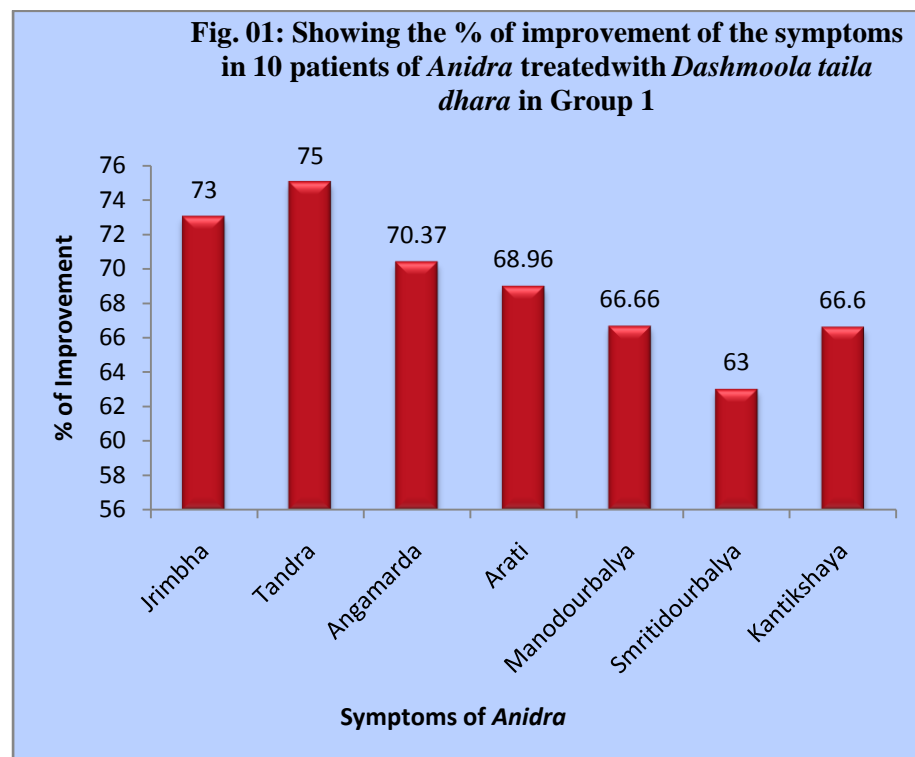
Table 5: Showing the pattern of recovery in “Sleep Diary” assessment in10 patients of *Anidra* treated with *Jala Shirodhara* in Group II

S. No	Symptoms (n = 10)	Mean		Diff.	Relief %	SD±	SE±	t	p	Result
		BT	AT							
1.	Time interval in getting asleep	2.3	0.5	1.8	78.26	0.63	0.2	9.00	<0.001	HS
2.	Sleep interruptions	2.1	0.8	1.3	61.90	0.48	0.15	8.51	<0.001	HS
3.	Naps-During Day time	2.0	0.8	1.2	60.0	0.42	0.16	9.00	<0.001	HS
4.	Feeling	2.4	0.9	1.5	62.5	0.52	0.16	9.00	<0.001	HS

5.	Irritability	2.3	0.9	1.4	60.86	0.51	0.16	8.57	<0.001	HS
6.	Total Duration of sleep	2.4	0.8	1.6	66.66	0.96	0.30	5.23	<0.001	HS
7.	Sleep Quality	2.3	0.9	1.4	60.86	0.51	0.16	8.57	<0.001	HS

HS= Highly Significant, S= Significant, NS= Not Significant

Following charts clearly depict the percentage improvement in various parameters in both the groups:



Effect of therapy on various signs and symptoms

- **Group I:** Highly significant improvement was seen on Jrimbha, Tandra, Angamarda, Arati, Manodourbalya, Smritidourbalya and Kantikshaya & in Sleep diary.
- **Group II:** Highly significant improvement was seen in Jrimbha, Tandra, Angamarda, Arati, Kantikshaya & in Sleep diary. Significant improvement was observed in Manodourbalya and Smritidourbalya.

On the completion of follow up study, it was also found that in group II (Jala dhara) there was a mild recurrence of symptoms in few cases, but in Dashmoola taila Shirodhara group, the recurrence was minimum.

DISCUSSION

Statistical analysis of the effect of therapy in both the groups, on each sign and symptom revealed following facts.

Jrmbha (yawning), *Angamarda* / *Angashada* (malaise), *Tandra* (drowsiness- due to vitiated *vata* and reduced *kapha*), *Arati* / *Klama* (fatigue & inertness) *Kantikshaya* (loss of luster) and sleep interruption occur due to vitiation of *vata*. In general, oils are best to pacify *vata*, *Dashmoola* maintains the equilibrium of *tridoshas*, milk has *vata-pitta* pacifying property, and the procedure of *Shirodhara* in itself has a *vata* pacifying effect. This is probably the reason behind the highly significant improvement seen in aforesaid symptoms in patients of both the treatment groups. For the same reasons, a highly significant improvement was seen in both the groups, regarding time interval in getting asleep, naps-during day time, feeling (general well being), irritability, total duration of sleep and sleep quality. Although *Manodourbalya* (lack of concentration) and *Smritidourbalya* (loss of memory) are also caused due to *Vata prakopa*, there is also an incidental association of *Chitt anavaesthita* with it. Oil and *Shirodhara* are best in the management of this condition. This is probably why improvement in these symptoms was highly significant in group I, whereas it was seen to be only significant in group II (*Jala dhara* treated group).

Kantikshaya (loss of luster) is due to *Vata and pitta prakopa* i.e. *Shyavatarunta*. Again, oil is *vata* pacifying and milk also balances *Bharajaka pitta*. This is probably why improvement in this sign was seen to be highly significant only in group I.

Although improvement in 'time interval in getting sleep' was highly significant in both the groups, *Jala dhara* was relatively better in doing so. This could be because of an earlier concentration stage found in this group.

As recurrence of symptoms was minimum in group II, so for long term benefits, *Dashmoola* oil *Shirodhara* can be considered to be better than water (*Jala dhara*).

Although the *Shirodhara* and *Jala dhara* are clinically found to be effective in insomnia, their exact mode of action is yet not clear. An attempt is being made here in following sub-sections to suggest its probable mode of action, mainly on the basis of textual references.

Mode of action of Dashmoola Taila Dhara in Anidra

In the present study, the *Dashmoola taila* was used because *Dashmoola* and *tila taila*, both are considered best in *vata* disorders and hence their synergetic action may control the aggravated *vata* more rapidly. As there is dominance of *vata* in insomnia, *sarshapa taila* was replaced with *tila tail* in the *Dashmoola taila* used in this study.

Bhavaprakasha has described that the drugs under *Dashamula Taila* have *ushna virya*, *tridosahara* and *vedanasthapaka* (resets the pain receptors) properties, due to which it might have balanced the vitiated *Vata - Pitta doshas* in this disease. *Sneha* is having *snighda*

(unctuous), *guru* (heavy) and *ushna* (hot) qualities, which are contrary to *vata*, therefore *sneha* is considered best in controlling *vata* aggravation, along with its bonus property of giving instant feeling of happiness to the mind. When oil is refined with *Dashmoola dravayas*, the *vata* pacifying potency of the so obtained combination gets further increased many more times. ^[9]

The therapeutic effect in insomnia may be due to diffusion of *Dashmoola* drugs with *sneha* through the fine pores present over the forehead, quite similar to the procedures like *Abhayanga* (massage), *Snana* (bathing), *Udvartana* (massage with dry herbal drugs), *Parisheka* (spraying). Moreover, there is also a possibility that certain amount of the drugs may also get absorbed by application of such substances on the skin.

Mode of action of Jala dhara

Although clinically the efficacy of *Jala dhara* has been proved, it is a difficult task to understand the mode of action of *Jala dhara*.

In *Jala dhara*, the patient is asked to lie down in supine position as in *Shavasana* (a flat lying position in a relaxed state of mind and body), the position used for relaxation in Yogic science. Again during *Jala dhara*, the patients are asked to concentrate on the forehead i.e. in between eyebrows. This serves to temporarily detach the patient from the surroundings and thus helps him to calm his/her stressful mind. As the patient concentrates on this particular place, the thought process gradually decreases and eventually the entire physiology also probably goes on in relaxing state. *Jala dhara* pacifies *Vata dosha* by its calming and penetrating effect, whereas calms the *Pitta dosha* by its cooling effects.

In this way, *Jala dhara* may be offering its beneficial effect in *Anidra*.

Mode of action of Shirodhara

According to Ayurvedic view:

- *Shirodhara* works as *Samvahana* (gentle massage) on the head, and this re-establishes the functions of *Vata* and *Mana*, because *sparshendriya* (skin) is the *Chetsamvahi* (inherently association with mind) and the *Vyapaka* (widespread) *vata* is seated in it. ^[10-11]
- Continuous flow of *Shirodhara* on *Shira* improves the *Dhi* (intellect), *Dhiriti* (restraint) and *dhyana* (concentration) i.e. there is balance of *Raja* and *Tama dosha* and improvement of *Satva guna*.
- Through its mechanical effect, *Shirodhara* re-establishes the functional integrity between the *doshas* located in *Shira* or *Hridaya* i.e. *Prana*, *Udana* and *Vyana Vayu*, *Sadhaka Pitta* and *Tarpaka Kapha*.
- The forehead and head are areas of many vital spots (*marma*) as mentioned in Ayurvedic classics. Mainly *Sringataka*, *Sthapani*, *Utkshepa* and *Avarta Marmas* (the vital points in the head) are situated in this region. According to Acharya Bhela, the site of *Chitta* (mind) is *Bhrumadhya* (region between two eyebrows) i.e.

Sthapani Marma and *buddhi-vaishika Alochaka pitta* also situated on this region. The *Shirodhara* helps the patient to concentrate on this essential area, which eventually leads to stability in the functions of mind.

According to Yogic concepts:

- *Shirodhara* is believed to act at the level of *Yogic Chakras*. It stimulates the supreme *Chakras* i.e. *Aagya Chakra* and *Sahasrara Chakra* which are situated in the head region. These *Chakras* govern all the vital energies in the body. Due to the stimulation of these *Chakras*, the individual achieves a good mental condition. Hence, conditions like *Anidra* are really benefitted by the *Shirodhara*.
- In yogic sciences, there are a number of procedures explained for relaxation of body and mind. So the procedures like meditation and relaxation cause the mind to come down to a tranquil state and thus they reduce the stress and help in normal and better functioning of the mind. Most of the benefits of meditation and relaxation are seen to be achieved by the procedure of *Shirodhara*. The method of *Shirodhara* may even produce effects similar to that of “*Yoga nidra*” technique in yogic science.
- In *Shirodhara*, the patient is asked to lie down in supine position as in *Shavasana*. This position in itself is used for relaxation in Yogic science.
- In Yogic philosophies, the natural path of respiration (invisible) is told to be present over forehead and any obstruction in it is said to lead to psychic ailments. The continuous pouring act in *Shirodhara* may serve to remove such obstructions in this path and thus alleviate ailments as insomnia.

According to Modern science:

Modern explanation for the therapeutic effect of *Shirodhara* can be made on the background of following important anatomical and physiological modern considerations regarding sleep:

- The thalamus, basal forebrain and medullary reticular formation are held responsible for sleep.
- An axial “core” of neurons extends from the brainstem rostrally, up to the basal forebrain. Complex commingling of neuronal groups occurs at many points along this brainstem-forebrain axis. A cluster of γ -aminobutyric acid (GABA) and gabanergic neurons in the Ventrolateral Preoptic (VLPO) hypothalamus is selectively activated coincident with sleep onset.
- Raphe nuclei of the brainstem then bring the amount of serotonin and catecholamine to the normal stage inducing the sleep.
- Secretion of a variety of sleep promoting substances including prostaglandins D_2 , muramyl dipeptide, interleukin 1, fatty acid primary amides and melatonin that have hypnotic effect.
- Suprachiasmatic nuclei (SCN) of the hypothalamus acts as a central neural pacemaker for driving the endogenous circadian rhythms in humans. This rhythm is mediated by Retino-hypothalamic tract, which is monosynaptic pathway linking retina to the SCN.

The therapeutic effects of *Shirodhara* can be due to one or more of the following reasons:

1. In the procedure of *Shirodhara*, particular pressure and vibration may get created over the forehead. These vibrations may get amplified by the hollow sinus present in the frontal bone. These may then be transmitted inwards through the fluid medium of cerebrospinal fluid (CSF). This vibration, along with a mildly increased temperature, may stimulate the higher centers in a positive way.^[12]
2. According to the modern science, forebrain is the site of behaviour, concentration and intelligence. *Shirodhara* may stimulate the forebrain and produce improvement in these qualities.
3. It has been explained in modern text books that pressure has an effect on impulse conduction through tactile and thermo receptors. If prolonged pressure is applied to a nerve, impulse conduction is interrupted and the concerned part of the body may go to rest. In *Dhara* therapy, prolonged and continuous pressure due to pouring of the medicated liquids may thus cause tranquility of mind and induce natural sleep.
4. Continuous flow of lukewarm liquid may dilate the blood vessels and thus increase the blood flow through the brain. It thereafter circulates and warms rest of the body too. It has been proved that higher the body temperature, longer will be the sleep.
5. The space between the two eyebrows is the seat of pituitary and pineal gland. As we know, pituitary gland is one of the main glands of the endocrine system. *Shirodhara* may stimulate it by its penetrating effect, which decreases the brain cortisone and adrenaline level, synchronizes the brain wave (alpha waves), strengthens the mind and spirit and this continues even after the relaxation.

CONCLUSIONS

On the basis of this study, it can be concluded that:

- *Anidra* been compared with *Insomnia* because predominant complaint is of difficulty in initiating or maintaining sleep.
- Both, as per *Ayurveda* and modern science, *Anidra* occurs as a symptom in various diseases and not as a single disease entity.
- *Vata dosha*, *Pitta dosha*, *Rajo guna*, *Hridaya*, *Mana* and *Sanjnavaha srotas* (sensory channels) play an important role in the pathogenesis of *Anidra*. Thus vitiation of these factors leads to the disease *Anidra*.
- *Anidra* has been included under 80 *Vata Nanatmaja Vikaras* and hence vitiation of *vata* is found in almost all the cases *anidra*.
- Most of the patients were of *Rajasika prakriti*. *Manashika nidana* (psychological causes) were seen in most of these patients. All the patients were found to be under stress and *chinta* was the most common complaint reported by all the patients.

- High incidence of this disease was found in males and that too in the males of growing age (20-30) and advancing ages i.e. above the 50 years of age, which is mainly due to modern lifestyle.
- *Manasika Nidanas* as well as Psychic stress are the main causative factors of this disease. So, along with medicines, psychic management which ultimately provides '*Manah Sukham*' has been described by our ancient acharyas.
- A Panchakarma based procedure, *Shirodhara*, is a better and safer way to manage *Anidra* / insomnia. It acts by counteracting the disturbed *Manasika Bhavas*, i.e. the stressors, which eventually produces tranquility of mind and induces the sleep.
- *Dashmoola taila Shirodhara* was found most effective in producing improvement in all the parameters in both the groups, except in time interval in getting sleep.
- Mild recurrence of symptoms was seen in group II. Therefore for long term benefits, *Dashmoola* oil (*Shirodhara*) appears to be more promising than plain water (*Jala dhara*).
- Irrespective of the liquid used in *Shirodhara*, it extends some additional therapeutic benefits as meditation effect, enhancement of *Satva guna* and balancing the *Raja* and *Tama doshas*. It can therefore be concluded that *Shirodhara* is a very good and safe remedy for management of Insomnia, if the patients abide by the *Nidana parivarjana* & proper *pathya* rules. But a further study on larger groups of patients is needed to affirm these data.

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