

Study of effect of *Padabhyanga* (foot massage) with *tila taila* (sesame oil) in elderly patients suffering from *nidra bransha* (insomnia)

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Abstract

Nidra bransha (insomnia) is common in elderly people and it is associated with multiple health problems. *Abhyanga* like *Padabhyanga* has many proven benefits and no side effects. We studied the effects of *Padabhyanga* with *tila taila* (Sesame oil), in elderly subjects suffering from *nidra bransha*. Sixty patients of either sex and age more than 60 years were given the therapy every night before going to bed for four weeks. Effects of the therapy on sleep and associated parameters were evaluated. The therapy improved quality and duration of sleep; it also decreased time taken to fall asleep and intermittent awakening. Participants experienced positive effects on *Sukha* (happiness), *Pushti* (nourishment), *Bala* (strength) and *Gyana* (knowledge) at the end of four weeks of therapy. So the *Padabhyanga* therapy should be advocated in elderly patients of insomnia since it is cheap, convenient and not associated with troublesome side effects commonly seen with sleeping pills.

Keywords: Sleep, geriatric, *abhyanga*, foot massage, *tila taila*.

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INTRODUCTION

Nidra (Sleep) influences our mental, physical, and emotional well-being, therefore concept of sleep is very much important in *Ayurveda*. The three supports of life are intake of food, sleep and observance of *brahmacharya*. Being supported by these three well regulated factors of life, the body is endowed with strength, complexion and growth, and continues until the full span of life.¹ *Ayurveda* has given a lot of importance to *Nidra* in our daily life for the maintenance of health.

Next to *Ahara* (food), the *Nidra* is the second most important for life. *Susruta* quoted that sleep is enjoyment of pleasure by body and sense organs. As *Nidra* being chief nourisher of the body, it plays an important role in promotion of health and prevention of diseases.² *Abhyanga* (oil massage) wards off old age, exertion, bestows good vision, long life and good sleep. It should be done specially to head, ears and feet.³ *Padabhyanga* (foot massage) promotes sleep; it increases quality and duration of sleep.⁴ *Nidra bransha* (insomnia) is commonly seen in elderly people and it is associated with multiple health problems. Although many drugs are available for the treatment, they can be addicting and are associated with many side effects especially in old patients.⁵ Hence, we decided to study the effect of *Padabhyanga* with *tila taila* (Sesame oil), which has many proven benefits and no side effects, in elderly subjects of insomnia.

MATERIALS AND METHODS

It was a single arm prospective study. The study was conducted in Yerala Ayurvedic Medical College and

Hospital after taking permission from ethical and institutional committee.

Subjects

Sixty patients of either sex and chronological age more than 60 years, suffering from *Nidra bransha* were recruited after taking written informed consent. Those who were receiving sedative drugs, psychiatric treatment or having history of addiction e.g. alcohol, smoking etc were not included. Also subjects suffering from any painful/stressful condition or discomfort, working during night hours or not willing to give informed consent were excluded from the study. Subjects were examined thoroughly according to case record form. They were explained the importance of *Padabhyanga* and demonstrated the procedure.

Technique Of Massage

Subject was asked to lie down or sit in a comfortable position. Feet are soaked in a tub of warm to hot water for few minutes to remove any dirt and then towel dried. They were told to hold the foot in hand and establish the contact with hand. First movements like ankle rotation, ankle stretching and stroking of the foot from the ankle to the toes were done to relax whole area of foot. Then warm *Tila taila* (Sesame oil) was then smoothly massaged on the foot with the care that the movement should not be too fast or too slow.⁶ They were given a bottle containing 200 ml of standardized *tila taila* and they were asked to take the massage preferably from some family member for 10-20 mins everyday, 2 hrs before going to bed. Evaluation of the effect of *Padabhyanga* on sleep and associated parameters was done every week for next four weeks.

Chemical composition of *tila taila* (Sesame oil)

Fats 43-56-8%, Protiens 16.6-26.4 %, Carbohydrates 9.1-25.2 %, Calcium 1.06-1.45%, Phosphorus 0.47-0.62%, Mineral dravyas 4.1-7.4%.⁷

Statistical Analysis

Data analysis was done by using Graph pad software and (p<0.05) was statistically significant. Descriptive statistics, paired t tests and Chi-square test were used for analyzing data.

RESULTS

Total 60 subjects were recruited for the study. Out of them, 29 (48.33 %) were males and 31 (51.67 %) were females. Their mean age and weight were 64.42 ± 3.42 were 62.97 ± 5.05 respectively. 51 (85%) patients were following mixed diet (*Ahara*), while remaining 9 (15%) patients were vegetarians.

Effect of *Padabhyanga* on blood pressure and pulse rate

All the subjects received *Padabhyanga* for four weeks. The mean systolic as well as diastolic blood pressures

were lower at the end of 28th day as compared to baseline. But the difference was not statistically significant. Similarly there was mild and non significant reduction in the mean pulse rate at 28th day. (Table 1)

Table 1: Effect on Blood Pressure (mm of Hg) and Pulse Rate (per min)

	Baseline	At 28th Day
Systolic BP	126.47 ± 8.88	124.93 ± 7.65
Diastolic BP	78.80 ± 4.27	78.10 ± 3.78
Pulse Rate	77.23 ± 9.55	76.63 ± 8.98

(Mean ± standard deviation), p > 0.05, Paired t test (n = 60)

Effect of *Padabhyanga* on Sleep

Padabhyanga therapy decreased time spent in bed before falling asleep (Figure 1) and increased the total duration of sleep (Figure 2), the difference was statistically significant at the end of 14th, 21st and 28th day for both the parameters. With the continued *Padabhyanga* therapy, gradual improvement in the quality of sleep (Figure 3) and decrease in intermittent awakening (*Jagruk*) was noticed (Figure 4), the differences were significant at the end all four weeks.

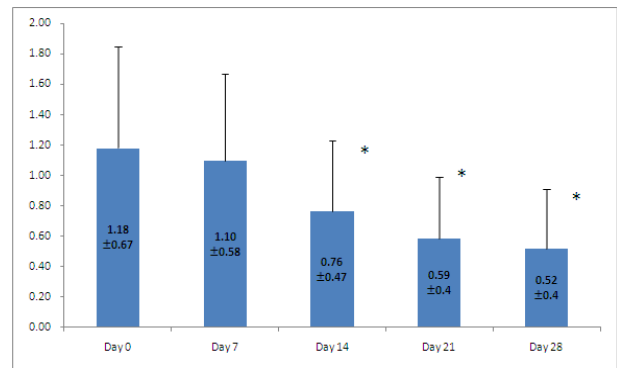


Figure 1: Time spent in bed (hrs)

*P value < 0.001, Analysis of Variance

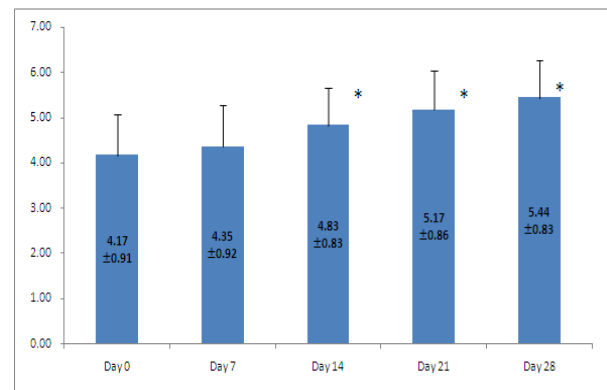


Figure 2: Total duration of sleep (hrs)

*P value < 0.001, Analysis of Variance

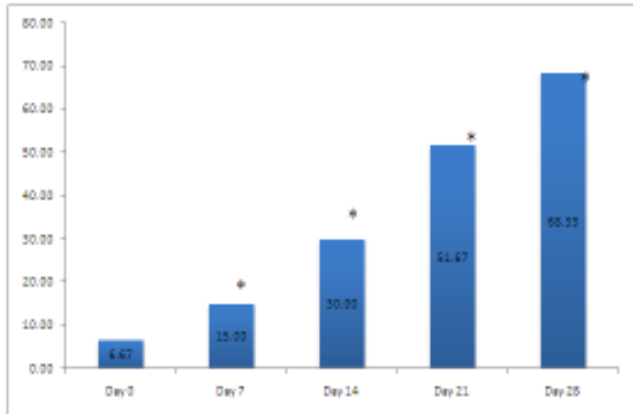


Figure 3: Improvement in quality of Sleep (%)

*P value < 0.0001, Chi-squared test

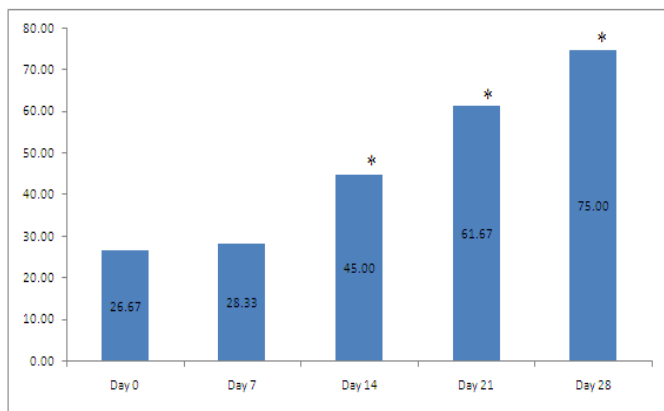


Figure 4: Decrease in Awakening (%)

P value < 0.0001, Chi-squared test

Effect of Padabhyanga on associated parameters

Effect on *Sukha* (happiness), *Pushti* (nourishment), *Bala* (strength) and *Gyana* (knowledge) was evaluated after giving *Padabhyanga* therapy. At the end of 28th day most of the subjects claimed improvement on all these parameters. (Table 2)

Table 2: Effect on Associated Parameters (n =60)

	Improvement	No improvement
Sukha (happiness)	55 (91.67 %)	5 (8.33 %)
Pushti (nourishment)	56 (93.33 %)	4 (6.67 %)
Bala (strength)	54 (90 %)	6 (10 %)
Gyana (knowledge)	56 (93.33 %)	4 (6.67 %)

DISCUSSION

Insomnia is very common in elderly people, a recent observational study conducted in over 500 elderly patients (age > 60 years) attending geriatric found that 32 % of them suffered from insomnia.⁸ There are many causes implicated for the disturbed sleep, like emotional stress, physiologic changes of aging, circadian rhythm disorders, psychosomatic disorders, underlying medical

conditions, adverse effects of drugs etc.⁵ *Nidra* (Sleep) is the basic function of living beings hence referred as *Upastambha* (Support of Life) in *Ayurveda*. Sleep being an integral part of our life plays an important role in promotion of health and prevention of diseases.¹ *Abyanga* with oil makes human body strong. It becomes unsusceptible to diseases of *vata*, resistant to exhaustion and exertion. The body is compared to tree. If the roots of the trees are given water regularly and it lives a long life. Similarly if person is given *abyanga* the he lives long, the person *dhatu* are nourished and maintains healthy live.² In *Madanphala Nigantu*, it is mentioned that *taila abyanga* are beneficial for *vata vruddhi* especially in the old age to promote sleep. Massage promotes improved visceral functioning and re-establishes homeostasis.⁷ A beneficial description of *Padabyanga* is given in Vagbhhat. By massaging *taila* on foot it promotes sleep. Applying oil on foot reduces numbness, stiffness and promotes health. Helps in reducing *Vata*, *Rukshata* of skin, *pida* and increases *bala*.⁴ *Tila Taila* (sesame oil) has the properties like penetrating deep into tissues and spreading throughout the body part. It is hot in potency it decreases *vata*, does not increase *kapha* and help fat person to make lean. It is used for *Snana* (bath), *Abyanga*, *Basti* (enema), *Nasya* (snuff), *Netra Puran* and in food.⁹ In our study, we found that *Padabhyanga* therapy caused mild reduction in blood pressure and pulse rate and it significantly improved quality and duration of sleep in elderly patients. (Table 1, Figures 1-4) The beneficial effect on sleep went on increasing with the continued therapy. Similar kind of effects on blood pressure and pulse rate was observed because of foot massage in studies conducted on elderly patients of dementia and patients in critical care.^{10,11} In studies conducted on elderly subjects, it was observed that foot massage improved quality of sleep, reduced depression and increased the level of serotonin.^{12,13} A systematic review reported that foot massage with essential oils causing reduction in anxiety and improvements in well being of patient cancer patients and patients in intensive care. The methodologies used ranged from observational studies to randomized controlled trials with interventions like foot massage or modified reflexology lasting from 5 to 30 min.¹⁴ Our study showed that *Padabhyanga* therapy had positive effects on *Sukha*, *Pushti*, *Bala* and *Gyana* in most of the subjects suffering from insomnia (*nidra brhansha*). As *Nidra* comes under the heading of non-suppressible urge; it becomes causative factor for many diseases. Suppression of the urge for *Nidra* causes yawning, malaise, drowsiness, heaviness in the head and eyes. To overcome that one should resort to sound sleep and gentle massage of the body. Person having *vatala prakrti*; sleeps less or has disturbed sleep or even if he sleep for longer duration,

wake up frequently.¹⁵ Sleep is a chief nourisher at life's feast. It occurs due to increased *Tamoguna*. During sleep anabolism is active and catabolism relatively passive thus prevents body organs from damaged and repairs damage at cellular level, hence sleep is essential for survival. In *Yogadarsana*, Maharsi Patanjali scripted five types of 'Citta vrtti' (functions of the mind) viz. *Pramana* (valid cognition), *Viparyaya* (misconception), *Vikalpa* (imagination), *Nidra* (sleep) and *Smrti* (memory). *Nidra* is known as detachment of mind from sense organs and there is absence of other four *Citta vrtti*. It occurs due to *Tamoguna* but there is presence of knowledge. Rather sleep if properly enjoyed it brings about happiness in human beings as the real knowledge brings about *Siddhi* (Spiritual power) in a Yogi.¹⁶ *Carakacarya* in '*Astauninditiya adhyaya*' engraved that joy and despair, nourishment and emaciation, power and weakness, virility and sterility, wisdom and lack of knowledge, existence and end; all these effects depend on the appropriate or improper sleep. They relates with one's physical, psychological and spiritual health. Being supported by proper sleep, body is endowed with strength, knowledge and grows continuous until the full span of life. Due to improper sleep, *rasa dhatu* becomes deficient, does not circulate in and nourishes body; which causes excessive emaciation. *Gyana*, according to *Susruta*, is the extreme knowledge of *Atman* and this quality is related to mind only. Sleep if properly enjoyed brings about happiness and longevity in human beings as the real knowledge brings about *Siddhi* in yogi.² The current study shows that *Padabhyana* can effectively relieve insomnia in elderly patients if given regularly. It can be more effective if it is combined with good sleep hygiene habits like following regular times for retiring and waking, avoiding daytime naps, alcohol, caffeine, stimulant drugs, stressful activities before going to sleep; restricting fluid intake at night, keeping bedroom quiet and using bed only for sleeping etc.¹⁷ Elderly people suffer from many health problems and take multiple drugs for it, so there is increased risk of drug interactions. They are particularly more susceptible to adverse effects of drugs because of decreased metabolism, depressed renal function etc which affects clearance of drugs from body. So every attempt should be made to manage common health problems like insomnia with alternative therapy like foot massage which is convenient, cheap and not associated with adverse effects.

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