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A comparative clinical study on the effect of *Tagara* (*Valeriana wallichii* DC.) and *Jatamansi* (*Nardostachys jatamansi* DC.) in the management of *Anidra* (primary insomnia)

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Abstract

Introduction: The World Health Organization's 2004 Global Burden of Disease report indicated 3.6 million years of productive, healthy life is lost worldwide as a result of primary insomnia. Approximately 30–35% of people meet diagnostic criteria for primary insomnia characterized by impairment resulting from problems of falling and staying asleep. **Aims:** To evaluate the effect of *Tagara* (*Valeriana wallichii* DC.) and *Jatamansi* (*Nardostachys jatamansi* DC.) in the management of *Anidra*. **Materials and Methods:** A total of 34 patients were selected fulfilling the criteria for inclusion for primary insomnia were randomly selected from Out Patient Department and In Patient Department of *Manasa Roga* and assigned into two groups, wherein 30 patients completed the study (15 in each). *Tagara Churna* (powder of *V. wallichii*) and *Jatamansi Churna* (powder of *N. jatamansi*) in the dose of 4 gm with milk was administered three times a day for a period of 1 month. **Results:** *Tagara* provided significant improvement in initiation of sleep (76.00%; $P < 0.001$), duration of sleep (55.17%; $P < 0.001$), disturbed sleep (69.58%; $P < 0.001$), and disturbances in routine work (73.95%; $P < 0.001$). *Jatamansi* provided improvement in initiation of sleep (61.34%; $P < 0.001$), duration of sleep (48.25%; $P < 0.001$), disturbed sleep (53.08%; $P < 0.001$), and disturbance in routine works (43.85%; $P < 0.001$). **Conclusion:** Both the groups showed good results, but *Tagara* group showed better results in comparison to *Jatamansi* group.

Key words: *Anidra*, *Jatamansi Churna*, *Nardostachys jatamansi*, primary insomnia, *Tagara Churna*, *Valeriana wallichii*

Introduction

Aahara (food), *Nidra* (sleep), and *Brahmacharya* (abstinence) are described to be the *Trayopasthambhas* (three supportive pillars) of life[1] and so, sleep is one of the essential factors to lead a healthy life. It has been rightly stated by Acharya Charaka that happiness and misery, proper and improper growth, good strength and weakness, potency and sterility, knowledge and ignorance, and life and death of an individual depend on the quality of sleep.[2]

Human being spend at least one-third of their life in asleep.[3] The importance of sleep is well accepted by modern science also because of its restorative, recuperative, and resting actions. Insomnia is a sleep disorder in which there is an inability to fall asleep or to stay asleep as long as desired. Among the chronic insomniac patients, about 25% are suffering from primary insomnia.[4]

In comparison to the therapeutic procedure of different systems of medicine, Ayurveda has a very good approach towards the treatment of *Anidra* (insomnia). a good number of single drugs too are described in Ayurvedic literatures which give relief from *Anidra*. *Tagara* and *Jatamansi* are included among the *Nidrajanana* (sedative and hypnotic) drugs in the classics.

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By taking into consideration of the above facts, this comparative study was planned to evaluate the effect of *Tagara* (*Valeriana wallichii* DC.) and *Jatamansi* (*Nardostachys jatamansi* DC.) clinically in the management of *Anidra* (primary insomnia) and to compare the effect of both drugs in the management of *Anidra*.

Materials and Methods

A total of 34 patients fulfilling the diagnostic criteria of *Anidra* (primary insomnia) were randomly selected and registered from the Out Patient Department and In Patient Department of *Manasa Roga*. The study was carried out after obtaining the ethical clearance of Institutional Ethics Committee (SDM/IEC/35/2010- 2011 dated 14-03-2011), and prior consent was taken from the patient for undertaking the study.

For diagnosis, a detailed medical history was taken and physical examination was done in detail according to both modern and Ayurvedic clinical methods. A detailed interview was conducted to elucidate sleep problems, social problems, and other areas of functioning, etc.

To assess the psychological intactness, the mental status examination was carried out. To confirm or exclude the other medical disorders, routine hematological and urine investigations were carried out. A special proforma was prepared with a gradation of symptoms and scoring was done by adopting Athens Insomnia Scale.[5]

Inclusion criteria

- Patients of insomnia suffering up to 5 years duration
- Patients of either sex, between the age group 15 and 45 years
- *Anidra* (insomnia) patients complaining of *Angamarda* (bodyache), *Shirogaurava* (heaviness in the head), *Jrumbha* (yawning), *Jadyata* (inactivity), *Glani* (exhaustion), *Bhrama* (giddiness), *Apakti* (indigestion).

Exclusion criteria

- *Anidra* (insomnia) due to other conditions such as *Madatyaya* (alcoholism), *Abhighata* (injury), and other systemic diseases
- Patients with secondary insomnia
- Patients on hypnotic medicine or other drugs known to cause drowsiness.

Grouping and posology

The patients were divided into two groups

Tagara group

In this group, 16 patients were registered, and the study was completed with 15 patients. *Tagara Churna* (powder of *V. wallichii* rhizome) in the dose of 4 gm with milk was administered 3 times a day after food for a period of 1 month.

Jatamansi group

In this group, 18 patients were registered, and the study was completed with 15 patients. *Jatamansi Churna* (powder of *N. jatamansi* rhizome) in the dose of 4 gm with milk was administered 3 times a day after food for a period of 1 month.

After the completion of treatment, patients were asked to follow up study at the fortnightly interval for 1 month. Both test drugs were procured from the pharmacy attached to Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan.

Criteria for assessment

The cardinal signs and symptoms such as difficulty in the initiation of sleep, sleep duration, disturbed sleep, and routine disturbances before and after treatment was measured by adopting Athens Insomnia Scale.[5] Associated symptoms such as *Angamarda* (malaise), *Shirogaurava* (heaviness in head), *Shirashoola* (headache), *Jrumbha* (yawning), *Glani* (exhaustion), *Bhrama* (giddiness), *Shrama* (fatigue), and *Klama* (mental fatigue) were assessed by adopting scoring system according to severity of each symptom.

Statistical analysis

Statistical analysis was carried by using student's *t*-test for comparison.

Observations

A total of 34 patients of *Anidra* were studied in two groups; of which 30 patients completed the course of treatment (15 in each). The chronicity was reported up to 6 months to 1 year by 35.29%, 1–2 years by 29.41%, 3–6 months by 26.47%, and 2–5 years of duration was found in 8.82% of patients. Of 34 patients, specific causative factors of *Anidra* that is *chinta* (excessive thinking) which was observed in 85.29%. Other etiological factors noted in the patients of this series were *Udvega* (anxiety) in 64.71%, *Vishada* (depression) in 29.41%, and family problems in 38.23%. Cardinal symptoms such as reduction in sleep time was present in all the patients that is, 100%, difficulty in initiation of sleep in 73.52%, disturbed sleep in 52.94%, disturbed routine work in 47.05%. Associated symptoms such as *Shirogaurava* was present in 64.70%, *Angamarda* in 61.76%, *Shrama* in 47.05%, *Klama* and *Shirashula* in 44.11% each, *Glani* in 41.17%, *Aruchi* (distaste) in 38.23%, *Apakti* (indigestion) and *Jrumbha* in 35.29% each, *Jadyata* (inactivity) and *Tandra* (stupor) in 29.41% each, and *Bhrama* in 23.52% of patients.

Results

The effectiveness is considered positive on the basis of established insomnia scoring scale before treatment and after the completion of 1 month of treatment.

Tagara group provided a significant improvement in duration of sleep by 55.17%, in the initiation of sleep by 76.00%, in disturbed sleep by 69.58%, in disturbances in routine work by 73.95%. This difference was statistically highly significant ($P < 0.001$) [Table 1]. *Jatamansi* group provided 61.34% improvement in the initiation of sleep, 48.25% in the duration of sleep, 43.85% in a disturbance in routine works, and 53.08% in disturbed sleep. This improvement was statistically highly significant ($P < 0.001$) [Table 2].

Tagara provided significant relief in *Angamarda* (78.33%), *Shirogaurava* (72.60%), *Shirashoola* (55.83%), *Jrumbha* (26.41%), *Glani* (36.79%), *Bhrama* (86.02%), *Shrama* (80.45%), and *Klama* (83.33%) [Table 3]. *Jatamansi* also gave significant relief in *Angamarda* (39.16%), *Shirogaurava* (41.87%), *Shirashoola* (66.67%), *Jrumbha* (50.00%), *Aruchi* (58.75%), *Shrama* (45.11%), *Klama* (56.00%), etc. [Table 4].

Table 1: Effect of *Tagara* on sleep pattern of 15 patients of *Anidra* (insomnia)

Signs and symptoms	Mean score		Percentage of relief	SD (±)	SE (±)	*t*	*P*	df
	BT	AT						
Sleep initiation (in grades)	1.75	0.42	76.00	0.52	0.15	4.69	<0.001	14
Duration of sleep (in h)	4.06	6.3	55.17	1.31	0.34	7.53	<0.001	14
Disturbed sleep (in grades)	2.4	0.73	69.58	0.96	0.24	7.90	<0.001	14
Disturbances in routine works (in grades)	1.92	0.5	73.95	0.65	0.17	5.70	<0.001	14

BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error, df: Degree of freedom

Table 2: Effect of *Jatamansi* on sleep pattern of 15 patients of *Anidra* (insomnia)

Signs and symptoms	Mean score		Percentage of relief	SD (±)	SE (±)	*t*	*P*	df
	BT	AT						
Sleep initiation (in grades)	2.38	0.92	61.34	0.76	0.21	6.0	<0.001	14
Duration of sleep (in h)	3.73	5.53	48.25	1.47	0.38	4.08	<0.001	14
Disturbed sleep (in grades)	2.43	1.14	53.08	0.95	0.25	6.62	<0.001	14
Disturbances in routine works (in grades)	2.28	1.28	43.85	1.07	0.28	4.26	<0.001	14

BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error, df: Degree of freedom

Table 3: Effect of *Tagara* on associated symptoms of 15 patients of *Anidra* (insomnia)

Symptoms	Mean score		Percentage of relief	SD (±)	SE (±)	*t*	*P*
	BT	AT					
Angamarda	1.2	0.26	78.33	0.59	0.15	3.76	<0.01
Shirogaurava	1.46	0.4	72.60	0.73	0.19	4.29	<0.001
Shirashoola	1.2	0.53	55.83	0.83	0.21	2.87	<0.05
Jrumbha	0.53	0.67	26.41	0.25	0.06	2.16	<0.05
Apakti	0.53	0.20	62.26	0.56	0.14	1.78	>0.05
Aruchi	0.53	0.20	62.26	0.41	0.10	2.09	>0.05
Glani	1.06	0.67	36.79	0.25	0.06	3.87	<0.001
Bhrama	0.93	0.13	86.02	0.51	0.13	3.05	<0.01
Shrama	1.33	0.26	80.45	0.59	0.15	4.29	<0.001
Klama	1.20	0.20	83.33	0.41	0.10	4.18	<0.001

BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error

Table 4: Effect of *Jatamansi* on associated symptoms of 15 patients of *Anidra* (insomnia)

Symptoms	Mean score		Percentage of relief	SD (±)	SE (±)	*t*	*P*
	BT	AT					
Angamarda	1.20	0.73	39.16	0.88	0.22	2.43	<0.05
Shirogaurava	1.60	0.93	41.87	0.83	0.22	3.10	<0.01
Shirashoola	1.20	0.40	66.67	0.63	0.16	3.5	<0.01
Jrumbha	1.20	0.60	50.00	0.82	0.21	2.80	<0.05
Apakti	0.53	0.20	62.26	0.41	0.10	2.09	>0.05
Aruchi	0.80	0.33	58.75	0.61	0.15	2.43	<0.05
Glani	0.93	0.67	27.95	0.89	0.23	1.74	>0.05
Bhrama	0.53	0.20	62.26	0.56	0.14	1.78	>0.05
Shrama	1.33	0.73	45.11	0.79	0.20	3.15	<0.01
Klama	1.06	0.46	56.60	0.74	0.19	2.80	<0.05

BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error

While comparing the effect in between two groups of *Tagara* and *Jatamansi*, a statistical significance was present only in the symptom of disturbances in routine works whereas in the symptoms such as sleep initiation, duration of sleep, and disturbed sleep was insignificant [Table 5].

The consideration of the overall effect of *Tagara* showed that, in this group, 13.3% had complete remission, 26.67% patient had marked improvement, 33.33% patients had moderate improvement, and 20.00% had mild improvement. Remaining 6.67% of patients remained unchanged. While in *Jatamansi* group, complete remission was found in 6.67% of patients, marked improvement in 13.33%, moderate improvement in 26.67%, and mild improvement in 40.00%; remaining 13.33% of patients remain unchanged [Table 6].

Discussion

Tamas (psychic principle) and *Kapha Dosha* (bodily humor) are responsible for sleep, whereas *Rajas* (psychic principle) and *Vata Dosha* (bodily humor) are responsible for loss of sleep or insomnia. *Tagara* and *Jatamansi* have similar *Rasa* (taste), *Guna* (property), and *Vipaka* (end product of digestion) while they differ only in *Virya* (potency). It is mentioned that there cannot be any *Karma* (action) without the help of *Virya* (potency).[6] The *Rasa* (taste) of *Tagara is* being *Katu* (pungent), *Tikta* (bitter), *Kashaya* (astringent), they should probably aggravate *Vata* (bodily humor). However because of its *Ushna Virya* (hot potency), it alleviates rather than aggravate *Vata*. This might be the probable reason that *Tagara* showed a better action when compared to *Jatamansi*. These pharmacodynamic actions are helpful in breaking the pathogenesis of *Anidra*.

Valerian and *Nardostachys* belong to the Valerianaceae family and share a group of active constituents, and the herbs are each characterized by an unusual fragrance, derived from the essential oil components. While looking into the mechanism of action of the drugs, both *Tagara* and *Jatamansi* have similar actions.[7,8] Valeranone and Valepotriates are present in both the drugs, where in the percentage of the active chemical constituents are more in the case of *V. wallichii*. Valeranone present in *Tagara* is 2%[7] whereas in *Jatamansi* it is only

Table 5: Comparative effect of *Tagara* and *Jatamansi* in *Anidra*

Signs and symptoms	Mean score	SD (±)	SE (±)	*t*	*P*
Sleep initiation (in grades)	0.80	0.77	0.20	1.97	>0.05
Duration of sleep (in h)	5.53	1.47	0.3794	1.51	>0.05
Disturbed sleep (in grades)	1.06	0.96	0.24	0.94	>0.05
Disturbances in routine works (in grades)	1.20	1.08	0.27	2.29	<0.05

SD: Standard deviation, SE: Standard error

Table 6: Overall effect of therapy

Improvement	*Tagara* group (%)	*Jatamansi* group (%)
Complete remission	13.33	6.67
Marked improvement	26.67	13.33
Moderate improvement	33.33	26.67
Mild improvement	20.00	40
Unchanged	6.67	13.33

0.02–0.1%.[9] Furthermore, Valepotriates are present in 3–6% in *Tagara*[10] whereas in *Jatamansi* it is less than 0.07%.[11] Valepotriates are responsible for the chief effect of Valerian as a potent Sedative.[12] It inhibits enzyme-induced breakdown of GABA in the brain resulting in sedation.[7,8] This might be the probable reason that there was a significant improvement in the signs and symptoms of the patients.

Conclusion

It is obvious from the foregoing study that *Tagara* and *Jatamansi* provided significant relief in signs and symptoms of the patients of *Anidra*. While comparing the results of both drugs it can be stated that *Tagara* provided better relief in the patients of *Anidra* in comparison to *Jatamansi*. Thus, it can be concluded that *Tagara* which is having the property of *Nidrajanana* (sedative and hypnotic) was found to be more effective in *Anidra* when compared to *Jatamansi*.

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Conflicts of interest
There are no conflicts of interest.

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हिन्दी सारांश

अनिद्रा रोग में तगर चूर्ण एवं जटामांसी चूर्ण का तुलनात्मक अध्ययन

तूलिका इ., नारायण प्रकाश भट्ट, सुहास कुमार शेट्टी

जैसा कि हम सब जानते हैं कि निद्रा मनुष्य के जीवन का एक स्तम्भ है, एवं अनिद्रा एक वातजनित व्याधि है जो वर्तमान काल में मनुष्य के जीवन में दुःख का घातक कारण है। वर्णित चिकित्सात्मक अध्ययन में अनिद्रा के ३० रोगियों का चयन किया। इस अध्ययन का मुख्य उद्देश्य विभिन्न वैज्ञानिक मापदण्डों के आधार पर अनिद्रा की चिकित्सा में तगर चूर्ण एवं जटामांसी चूर्ण का तुलनात्मक अध्ययन था। इस तुलनात्मक अध्ययन को दो समूहों में विभक्त किया गया। ग्रुप ए में १५ आतुरों को तगर चूर्ण ४ ग्राम दिन में ३ बार और ग्रुप बी में १५ आतुरों को जटामांसी चूर्ण ४ ग्राम दिन में ३ बार गाय के दूध के साथ एक माह तक दिया गया। दोनो समूहों की औषधियों का प्रभाव लक्षणात्मक तथा प्रयोगात्मक आधार पर देखा गया। अध्ययन में दोनो समूहों के रोगियों में परिणामात्मक सुधार प्राप्त हुए परन्तु तगर चूर्ण प्राप्त समूह के रोगियों में सांख्यिकीय दृष्टि से अत्यधिक महत्वपूर्ण सुधार प्राप्त हुए।