

A Clinical Evaluation of Ashwagandha Churna on Short-term Insomnia

*Dr. Aby Mathew, PG Scholar, ALNRMAMC, Koppa, Karnataka

Dr. Akhila Vinod, PG Scholar, ALNRMAMC, Koppa, Karnataka

*Corresponding Author: abym2343.am@gmail.com

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Abstract: Background: Ayurveda considers sleep as one of important sub-pillars of body associated with strength, potency, intellect etc. Diagnostic and Statistical Manual of Mental Disorders (DSM-V) refers dissatisfaction with sleep quantity and quality to insomnia. International Classification of Sleep Disorders (ICSD) 3 has classified insomnia in acute or short-term insomnia and chronic insomnia. Charak Chikitsasthana 24/88-91 mentions exhausted mind, sense organs, grief, alcohol etc. as various causes of insomnia. Various treatments are suggested in Ayurveda as massage, anointing, bath, rice with curds, meat, fishes, pleasant smell, proper time etc. Herbal treatment includes Sankhpushpi, Brahmi, Mandookparni, Jatamansi Ashwagandha etc. So, Ashwagandha churna was selected for the treatment of short-term insomnia in present study.

Materials and Methods: Present study deals with subjective parameters based on questionnaires given with Insomnia Severity Index and Pittsburgh Sleep Quality Index. 20 subjects were selected. The drug was given in churna form with milk after night meal. Wilcoxon's Signed rank test was used to compare pre-post treatment outcomes.

Result: Improvement was noted in all five parameters of ISI and six components (out of seven) of PQSI. However, severity of insomnia was moderate or subthreshold.

Discussion: Better reliefs were observed in latency of staying asleep and falling asleep. Ashwagandha enhances cholinergic transmission which is related to REM sleep. Ashwagandha also increases the DHEA-S levels and, DHEA-S level is also related with REM sleep.

Key words: Ashwagandha, Insomnia, Short-term insomnia

Sleep is one of important sub-pillars of body¹. It is considered so much important as wholesome diet². The real source of happiness like strength, potency, intellect etc. are dependent upon sleep³. It is associated with equilibrium of dhatus⁴. The 5th edition of *Diagnostic and Statistical Manual of Mental Disorders* (DSM-V) deals insomnia as dissatisfaction with sleep quantity and quality⁶. Main points are taken mainly under diagnostic criteria as difficulty in falling asleep, staying asleep or nonrestorative sleep; difficulty even after adequate opportunity to sleep; and daytime impairment or distress; sleep difficulty at least 3 times per week⁸. Three types are suggested as episodic, persistent and recurrent depending upon the times⁶. In episodic insomnia symptoms lasts for at least 1 month, but less than 2 months⁶. *International Classification of Sleep Disorders* (ICSD) 3 has placed this type of insomnia under acute or short-term insomnia⁷. It is more associated to situational conditions. DSM-V mentions significant distress or impairment in social, occupational, educational, academic, behavioral or other areas of functioning as consequences of insomnia. The causes may be intrinsic or extrinsic. Intrinsic causes include psychophysiological reasons including emotional issues, genetic reasons, loss of ventrolateral preoptic neurons⁹ and other physiological reasons. The extrinsic causes lie with travel, work schedule, habits etc. Even *Charak Chikitsasthana* 24/88-91 mentions exhausted mind, sense organs³, grief, alcohol etc. as various causes of insomnia⁵. Insomnia may lead to genesis of anxiety, memory loss, gastrointestinal problems etc., so its treatment is essential.

Massage, anointing, bath, rice with curds, meat, fishes, pleasant smell, proper time etc. are suggested as treatment of insomnia in *Ayurveda*¹⁰. Similar treatment with suggestions are referred by other system of medicine

too. They include sleep education, hygiene of sleep, stimulus control, relaxation, proper quantity of meal etc. Medications include sedative-hypnotics, melatonin agonists etc. Number of herbs, specifically those nootropic groups are used to treat insomnia like *Sankhpushpi*, *Brahmi*, *Mandookparni*, *Jatamansi* *Ashwagandha* etc. Studies suggest the actions of *Ashwagandha* on *hypothalamus-pituitary-adrenal axis* and sleep is related with this axis. So, *Ashwagandha churna* was selected for the treatment of short-term insomnia.

Materials and Methods

Procurement of Drug: Ernakulum market

Study Design: Pre-post treatment

Source of subjects: Based on consultancy in Kottayam

Number of subjects: 20

Inclusion criteria:

1. Between 20-45 years of age
2. Compliance with criteria diagnostic criteria for short-term insomnia in ICSD-3
3. No administration of other medication
4. Meet all the points of PSQI and ISI.
5. Voluntary participation for study after giving signed consent.

Exclusion criteria:

1. Subjects with psychological or mental problems.
2. Subjects with other serious diseases of hematological, respiratory, renal, cardiac or gastrointestinal origin.
3. Subjects with infections including AIDS, tuberculosis, syphilis, hepatitis etc.
4. Subjects having malnutrition.
5. Subjects gone through trauma which may affect sleep.
6. Subjects having allergic problems or skin diseases
7. Subjects with apnea problem.
8. Subjects with drug abuse or other medications responsible for insomnia.

Criteria of assessment: Insomnia Severity Index (ISI)¹¹ and Pittsburgh Sleep Quality Index (PSQI)¹²

Scoring pattern on ISI

1. Severity of insomnia

	None	Mild	Moderate	Severe	Very
Difficulty falling asleep	0	1	2	3	4
Difficulty staying asleep	0	1	2	3	4
Problem waking up too early	0	1	2	3	4

2. Satisfaction with sleep

Very satisfied	Slight dissatisfied	Moderate dissatisfied	Very dissatisfied	Completely
0	1	2	3	4

3. Interference of sleep with daily functioning (daytime fatigue, ability to function at work/daily chores, concentration, memory, mood etc.)

Not at all interfering	A little	Somewhat	Much	Very Much
0	1	2	3	4

4. Noticeable to others about sleeping problem

Not at all	Barely	Somewhat	Much	Very Much
0	1	2	3	4

5. Worried about sleep

Not at all	Barely	Somewhat	Much	Very Much
0	1	2	3	4

Pittsburgh Sleep Quality Index

Component 1: Subjective sleep quality

Very good	Fairly good	Fairly bad	Very bad
0	1	2	3

Component 2: Sleep latency

a. ≤ 15 minutes	16-30 minutes	31-60 minutes	>60 minutes
0	1	2	3

b. Not during past month	Less than once a week	Once or twice a week	3 or 4 times a week
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Sum of a+b = Component 2 score

0	1-2	3-4	5-6
0	1	2	3

Component 3: Sleep duration

>7 hours	6-7 hours	5-6 hours	< 5 hours
0	1	2	3

Component 4: Sleep efficiency

>85%	75-84%	65-74%	<65%
0	1	2	3

Component 5: Sleep disturbance

Not during past month	Less than once a week	Once or twice a week	3 or 4 times a week
0	1	2	3

Sum of 5b to 5j

0	1-9	10-18	19-27
0	1	2	3

Component 6: Use of sleep medication

Not during past month	Less than once a week	Once or twice a week	3 or 4 times a week
0	1	2	3

Component 7: Day time dysfunction

a. Not during past month	Less than once a week	Once or twice a week	3 or 4 times a week
0	1	2	3

b. No problem at all	Only slight problem	Somewhat of a problem	A very big problem
0	1	2	3

Sum of a+b

0	1-2	3-4	5-6
0	1	2	3

Intervention: *Ashwagandha Churna*

Dose: 2 gm after night meal

Anupana: Milk quantity sufficient

Duration of the Treatment: 30 days

Follow Up: 30 days after completion of intervention.

Statistical Analysis: Wilcoxon Signed Rank test using SPSS software.

Result

Insomnia severity index

1. Severity of Insomnia

Parameter	Mean \pm Standard Deviation		Significance
	Before Treatment	After Treatment	
a. Difficulty falling asleep	1.95 \pm 0.51	1.10 \pm 0.85	< 0.5
b. Difficulty staying asleep	2.05 \pm 0.39	0.70 \pm 0.57	< 0.5
c. Problem waking up too early	1.90 \pm 0.64	0.65 \pm 0.87	< 0.5
2. Satisfaction or dissatisfaction with sleeping pattern	2.25 \pm 0.64	1.05 \pm 0.89	< 0.5
3. Interference of sleep with daily functioning (e.g. daytime fatigue, ability to function at work/daily chores, concentration, memory, mood etc.)	2.25 \pm 0.64	1.05 \pm 0.89	< 0.5
4. Noticeable to others in terms of impairing quality of life	2.25 \pm 0.44	1.25 \pm 0.91	< 0.5
5. Worried about sleep	2.45 \pm 0.61	1.25 \pm 0.85	< 0.5
Before treatment	Range of score: 12 – 18		Average 15.05
After treatment	Range of score: 5 – 9		Average 6.95

Pittsburgh Sleep Quality Index

Parameter	Mean \pm Standard Deviation		Significance
	Before Treatment	After Treatment	
1. Component	1.84 \pm 0.60	0.89 \pm 0.66	< 0.5
2. Component 2	2.00 \pm 0.65	1.00 \pm 0.79	< 0.5
3. Component 3	2.10 \pm 0.79	0.85 \pm 0.88	< 0.5
4. Component 4	2.00 \pm 0.86	1.10 \pm 0.97	< 0.5
5. Component 5	1.88 \pm 0.59	1.10 \pm 0.97	< 0.5
6. Component 6	0.00 \pm 0.00	0.00 \pm 0.00	00
7. Component 7	1.78 \pm 0.56	1.10 \pm 0.61	< 0.5
Before treatment	Range of score: 9 – 14		Average 11.60
After treatment	Range of score: 4 – 8		Average 6.04

Discussion: The score range of ISI revealed the subjects under subthreshold insomnia to moderate severe insomnia¹¹. Comparatively better reliefs were observed in latency of staying asleep and falling asleep. Similar results were observed in PSQI for component-3. The questionnaires of component-3 were related to latency of sleep. The word somnifera in *Withania somnifera* is derived from latin word 'somnus' which means for sleep inducing¹³. Withanolide A is reported for recovery of both neuritic atrophy and synaptic loss¹⁴. It is also able to modulate cholinergic neurotransmission by inhibiting acetylcholine degradation and enhancing cholinergic transmission¹⁵. Animal experiments have shown the governance of REM sleep through cholinergic neurons in the brain stem¹⁶. Ashwagandha increases the DHEA-S levels¹⁸ and, DHEA-S level is also related with REM sleep. All subjects belonged to service class with stress of work. Ashwagandha is proven to have antianxiety effects¹⁷ and it's known that stress and anxiety are important among main causes of insomnia. Other steroidal lactones from Ashwagandha have also been revealed for their actions on CNS by various ways to affect sleep. More detailed study is required based on different compounds present with root of Ashwagandha on various aspects of sleep.

Conflict of Interest: No Conflict of Interest

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