

## Excessive Daytime Sleepiness Cure Through Ayurveda: A Case Study

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### ABSTRACT:

Excessive Daytime Sleepiness (EDS) is a clinical condition characterized by the inability to stay awake and alert during the major waking periods of the day. This affects a person's academic, professional and social domains impairing their quality of life. Moreover, EDS can be an early indicator of decline in cognitive functioning and onset of dementia as studies have found its association in the pathogenesis of Alzheimer disease. The same scenario is seen among Parkinson's disease population. Current systems of medicine address only the subjective condition in EDS and are associated with side effects over quality of life. This set off the need to address this issue. In *Ayurveda*, these symptoms can be brought under *Nidradhikya*. This is a case of EDS presented with complaints of falling asleep without being aware of it while at work. He was assessed with Modified Epworth Sleepiness Scale (MESS). Further, his blood and urine routine were evaluated to exclude any underlying diseases. The condition was managed by *Pachana-Deepana, Snehapana, Vamana* followed by *Samana Aushadha* for one month after which follow up was done where MESS score reduced to 4 which was 19 before the treatment. This report demonstrates a case of EDS successfully managed with *Ayurvedic* intervention.

**KEYWORDS:** Excessive Daytime Sleepiness, Hypersomnia, Nidradhikya, Panchagavya *Ghrita*, *Saraswata Choorna*, *Vamana*.

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## INTRODUCTION:

Excessive Daytime Sleepiness (EDS) is a prevalent disorder characterized by the inability to stay alert and awake during the major waking episodes of the day, resulting in unintended lapses of sleep.<sup>[1]</sup> Persons with EDS are at risk of motor vehicle accidents and work-related incidents. So it has become a significant public health problem with the prevalence to be as high as 18% in 2012<sup>[2]</sup>. Unavailability of satisfactory treatment in allopathic system of medicine leads to a need to search satisfactory treatment available in other medical system. As per Ayurveda, Excessive daytime sleepiness can be considered as *Nidradhikya* which is one among the twenty *Kaphaja Nanatmaja Vikara*<sup>[3]</sup>.

Here we report a case of EDS treated successfully through pure *Ayurvedic* treatment with complete remission. Guidelines of *Ayurvedic* management of *Nidradhikya* were adopted and an effort has been made to evaluate the efficacy of an *Ayurvedic* treatment protocol in the management of Excessive Daytime Sleepiness.

## Patient Information:

A 27-year-old unmarried, non-smoking, non-alcoholic male presented in the Outpatient Department (OPD) of Kayachikitsa, Amrita School of Ayurveda on 05/01/2021, with complaints of feeling asleep during his office work for 3 years. He provides a reported history of 12 years from his school days where he was not able to concentrate on studies because of excessive sleepiness during daytime. He reported that he fell asleep during his examination and was difficult for him to write exams for which he used to wash his face in between examination. Since this started impairing his quality of life, he consulted an allopathic physician and was provided with some iron

tablets which showed no significant change in the patient condition. After joining college also, the same symptoms continued. He used to stand and sleep on his way to college and back to home in bus. Since eight years, he is working as an accountant by profession. It has become very difficult for him as he falls asleep in between his job hours without being aware of it. He even gets scolded for this and warning was given. Along with this complaint, he feels lack of energy during daytime since 5 years. This altogether deteriorated his academic as well as professional domains impairing his quality of life. Hence the patient came for the management of these symptoms.

## Clinical Findings:

The patient had severe excessive daytime sleepiness along with feeling of lack of energy. There was no addiction history and any significant past history of DM, HTN, dyslipidemia, traumatic injury etc. No positive family history was present. The personal history revealed that the patient was used to take regular pattern mixed diet. His appetite was poor, bowel movements were regular having Madhyama Koshta (once daily) and normal micturition (4-5 times per day). His Sleep was sound (assessed by Pittsburgh Sleep Quality Index Score-3; Table no: 2) and was having allergy towards dust. On examination, the patient was found to have Mandagni (reduced digestive functions), and the tongue was a little coated. The stress level was assessed using perceived stress scale and the score was 13 indicating moderate stress. The treatment history revealed intake of iron tablets long back for the same complaints which did not show up any improvement.

General examination included pallor, icterus, cyanosis, clubbing and lymphadenopathy which were all normal. He was moderately

nourished, mesomorphic built having 61 Kg weight, 162 cm height and BMI of 23.24 Kg per m<sup>2</sup>. His vitals were all within normal limits being Temp: afebrile (36.6 degree Celsius), B.P: 130/80mm of Hg, Pulse: 70 beats/min, Respiratory rate: 18 breaths/min. and was well oriented to time, place and person. In constitutional symptoms, lethargy was present and on systemic examination all the systems were found to be within normal. Patient had *Kapha-Vata Prakriti* with *Madhyama Sara, Madhyama Sambanana, Sama Pramana, Vyamisra Satmya, Madhyama Satva, Madhyama Vyayama Shakti, Madhyama Vaya, Avara Abhyavaharana Shakti* and *Madhyama Jarana Shakti. Rasavaha Sroto Dushti* and *Manovaha Sroto Dushti* were prominent with symptoms like *Gaurava, Tandra, Sada, Klama* etc.

On 22<sup>nd</sup> of December 2021, the patient's blood and urine were examined. His haemoglobin was found to be 14.4 gm %, Total WBC count-6800 cells/cumm, ESR 5mm/hr., Neutrophils-45%, Lymphocytes-50%, Monocytes-1%, Eosinophils-4%, Urine Albumin-nil, Urine Glucose-nil and Urine microscopy was normal.

### Diagnostic and Assessment Criteria

**Table-1: Timeline of the case:**

Years	Clinical Events & Intervention
2009	Falling asleep during class hours without being aware of it.
2010	- Falling asleep during examinations. - Consulted a physician for excessive sleepiness during daytime and was provided with iron tablets.
2011 – 2013	Falling asleep during class hours & while travelling to college in public transport.
2014 – 2017	Falling asleep while working & travelling to work place.
2018 – 2020	Falling asleep while working, travelling to work place and during client meetings.
2020 – 2021 (Oct)	Falling asleep while working and having telephonic conversations.

Patient was diagnosed and assessed using Modified Epworth Sleepiness Scale and the score was 19 before treatment (Table no: 3) which reveals excessive sleepiness that need treatment.

### THERAPEUTIC INTERVENTION:

For the above clinical presentation, procedures such as *Vamana, Langhana, Raktamokshana, Sirovirechana, Dhooma, Vyayama, Bhaya, Chinta*, and *Krodha* are indicated in Ayurveda [4,5]. Appropriate procedures were selected considering *Rogi Bala* and *Roga Bala*. The patient was given *Pachana-Deepana* (digesting and appetizing) for *Agni Deepti* (increase in digestive capacity), *Snehapana* in *Arohana Krama* (intake of ghee in increasing order) followed by *Vamana* (Therapeutic vomiting) and *Samana Aushadha* (Table -4).

### Follow-up and Outcomes

The patient was followed after one month. He was assessed again with Modified Epworth Sleepiness Scale on February 24<sup>th</sup> 2021 and the score was reduced to 4 (Table no.3). There was significant relief of symptoms. No adverse events were reported during the treatment period.

**Table-2: The Pittsburgh Sleep Quality Index (PSQI):**

1. When have you usually gone to bed? 11.30pm				
2. How long (in minutes) has it taken you to fall asleep each night? 10-15 min				
3. When have you usually gotten up in the morning? - 8am				
4. How many hours of actual sleep do you get at night? (This may be different than the number of hours you spend in bed) 7-8 hours				
5. During the past month, how often have you had trouble sleeping because you...	Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times a week (3)
a. Cannot get to sleep within 30 minutes	+			
b. Wake up in the middle of the night or early morning	+			
c. Have to get up to use the bathroom	+			
d. Cannot breathe comfortably	+			
e. Cough or snore loudly	+			
f. Feel too cold	+			
g. Feel too hot	+			
h. Have bad dreams	+			
i. Have pain	+			
j. Other reason(s), please describe, including how often you have had trouble sleeping because of this reason(s):	+			
6. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep?	+			
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?				+
8. During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done?				+
	Very good(0)	Fairly good(1)	Fairly bad (2)	Very bad (3)
9. During the past month, how would you rate your sleep quality overall?	+			
PSQI SCORE		3		

**Table-3: Modified Epworth Sleepiness Scale:**

Questions	Before Treatment	After Treatment
Sitting and observing children/grandchildren do homework/play	3	1
Watching TV/Listening to Radio/Music	2	0
Sitting inactive in a public place (Movies/Park/Panchayath Katta/Temple)	2	0
As a passenger in a vehicle for an hour without a break	3	1
Lying down to rest in the afternoon when circumstances permit	3	1
Sitting and talking to someone	1	0
Sitting quietly after lunch (without alcohol)	3	1
During work when taking a short break	2	0
<b>Total</b>	<b>19</b>	<b>4</b>

**Table-4: Therapeutic intervention:**

Procedure	Drugs Used	Dose	No. of Days
<b>Deepana-Pachana</b>	<i>Trikatu Choorna</i>	12gms/daily [6g-0-6g] before food, with hot water	Till <i>Samyak Langhana Lakshanas</i> are seen-7 days [08/01/2021- 14/01/2021]
<b>Snehapana</b>	<i>Panchaganya Ghruta</i>	25ml, 30ml, 55ml, 120ml, 190ml, 310ml	Till <i>Samyak Snigdha Lakshanas</i> are seen-6 days [15/01/2021-20/01/2021] <i>Samyak Snigdha</i> Chart Score - 16 - <i>Pravara</i>
<b>Sarvanga Abhyanga &amp; Bashpa Sweda</b>	Sarvanga Abhyanga with <i>Tila Taila</i> followed by Bashpa Sweda with Dashamoola Kwatha		For 2 days [21/01/2021-22/01/2021]
<b>Kaphotkleshakara Ahara</b>	<i>Idli</i> & Sugar, Milk, Rice & Curd, <i>Payasam</i> , <i>Tila</i> balls, Gruel & Milk		For 1 day [21/01/2021]

<b>Vamana</b>	Classical <i>Madanaphala Yoga</i>	<i>Madanapippali</i> - 12gms; <i>Vacha</i> <i>Choorna</i> -4gms; <i>Yashtimadhu</i> <i>Choorna</i> -5gms; <i>Saindhava</i> -5gms; <i>Madhu</i> -Q.S	On 22/01/2021; <i>Madhyama</i> <i>Sudhi</i>
<b>Samsarjana Krama</b>	<i>Peya, Vilepi, Akrita</i> <i>Yusba, Krita Yusba,</i> <i>Akrita Mamsarasa,</i> <i>Krita Mamsarasa</i>		From 22/01/2021 to 25/01/2021
<b>Samana Aushadha</b>	<i>Saraswata Choorna</i>	12gms/daily [6g- 0-6g] after food, with <i>Gbrita</i> (2ml) + <i>Madhu</i> (1ml)	30 days [25/01/2021 – 23/02/2021]

## DISCUSSION:

Excessive Daytime sleepiness is a novel area that lacks effective management. The persons may experience as fatigue, being tired, feeling run down and having low energy. The individual identifies this issue when it is creating a problem in their life such as falling asleep in inappropriate settings like meetings, classes, driving, travelling, etc. Persons with EDS are at risk of motor vehicle accidents and work-related incidents. Many of them do not seek treatment for this thinking that it is due to tiredness because of their hectic work unless it severely affects their quality of life.

In *Ayurveda*, we may consider this as *Nidradhikya*, which is one among the twenty *Kaphaja Nanatmaja Vyadhis*<sup>[3]</sup>. *Nidāna Sevana* causes *Kapha Doṣa* vitiation along with *Tamogūṇa Vṛddhi* and afflicts *Hṛdaya* which is the *Sthāna* of *Manas*. This in turn results in the *Saṅga* of *Manovāha Srotas* rooting to dissociation of *Indriyaviśayas* and *Manas* culminating to *Nidradhikya*. It is presented with symptoms like *Gaurava, Tandra, Glani* and *Alasya*.

This case of Excessive Daytime Sleepiness was managed according to Ayurveda guidelines on *Nidradhikya*. *Pachana-Deepana* is first administered before giving any *Sodbhana* therapy for correction of digestion. In this present case, the patient was administered *Trikatu Choorna* at a dose of 6g twice daily before food with warm water for seven days which corrected his digestion. *Trikatu Choorna* which is *Deepana, Pachana, Sleshmaghna* improved the digestive capacity and primed the body for further *Snehapana* procedure<sup>[6]</sup>.

For internal administration of *Sneha* (Ghee), *Panchagavya Gbrita* was selected as it is *Srotosodbhaka, Agnideepaka* and has disease affinity by its *Kaphahara, Hridaya* and *Medhya* action. *Hridaya* being the *Sthana* of *Manas*<sup>[7]</sup>, *Hridaya Dravyas* have an influence over *Manas* and also *Hridaya* being the *Moola* of *Rasavaha Srotas*<sup>[8]</sup> it helps in formation of proper *Rasa Dhatu* by improving its quality thereby bringing about *Shuddhi* of *Rasavaha Srotas*. The *Srotosodbhana* action of the formulation helps to act deeply on the mind destructing the *Avarana* of *Tamas* leading to its clarity. In

addition, *Snehapana* as such helps in attaining increase of *Agni* (digestive fire) and *Dridendriya* (perfect sense organs).

Then *Sarvanga Abhyanga* with *Tila Taila* and *Bashpa Sweda* was given for 2 days. *Tila Taila* with its properties like *Ushna*, *Tikshna*, *Sukshma*, *Vyavayi Guna*<sup>[9]</sup> along with *Bashpa Sweda* having properties like *Ushna*, *Tikshna Guna* helps in deeper penetration, liquefaction of *Doshas* thereby bringing the vitiated *Doshas* from *Sakha* to *Koshtha* for *Sodhana* (expulsion).

*Vamana* is said to be the best therapy for the elimination of *Kapha Dosha*<sup>[10]</sup> and hence it was adopted here with classical *Madanaphala Yoga*. On the second day, after *Sarvanga Abhyanga* and *Bashpa Sweda*, Patient was given *Vamana* therapy. For this, first he was given *Payasa* in empty stomach followed by *Akantapana* (till throat) of milk and then *Vamana Aushadha*. Then assessment of *Vegas* was done. The patient attained *Madhyama Sudhi* with 6 *Vegas* and 3 *Upavegas*. *Vamana* helps in expulsion of *Kapha Dosha*, imparts *Hrut Sudhi*, *Parswa Sudhi*, *Murdha Sudhi*, *Indriya Sudhi* and *Laghutva* to the body<sup>[11]</sup>. Other than this, *Sodhana* itself imparts *Budhi Prasadana*, *Bala* to *Indriyas*, *Sthiratva* to *Dhathus* and *Agni Deepana*<sup>[12]</sup>. *Acharya* quotes that the *Avarana* of *Manas* caused by *Kapha Pitta Dosa* gets removed by *Sodhana Karma* which helps in attaining *Mana Sareera Suddhi* and in turn causes *Hrut Sudhi* that imparts *Mana Prasadana*<sup>[13]</sup>.

After *Vamana*, he was advised to follow *Madhyama Samsarjana Krama* for 4 days for kindling of his digestion. Then he was given *Saraswata Choorna* as *Samana Aushadha* for 30 days. *Saraswata Choorna* is having attributes like, *Medhya*, *Budhi Smriti Dhriti Vardhaka* and is being indicated in *Vichetas* that helps in improving this condition<sup>[14]</sup>. Most of the drugs in *Saraswata Choorna* like *Asvagandha*, *Sankhapushpi*, *Vaca*, *Brahmi*, *Pippali*, *Kushta* are

*Medhya Rasayana*. *Rasayana Dravya* by nature imparts *Indriya Bala*<sup>[15]</sup>. They act by nourishing *Rasadi Dhatus*. The *Karma* of *Rasa Dhatu* is *Prinanam* for which *Arunadatta* clearly comments as to nourish the *Indriyas* which results in *Mana Prasadana*<sup>[16]</sup>. So, administration of *Saraswata Choorna* as *Samana Yoga* following *Vamana Karma* was effective in reducing Excessive Daytime Sleepiness by removing *Tamoguna* and providing *Mana Prasadana*.

At present, the patient is stable and there is considerable relief of his symptoms. The quality of life of the patient has improved. There is no worsening of any symptoms and signs until September 2021. Thus, the *Ayurvedic* guideline for treatment of *Nidradhikya* was found to impart considerable relief in Excessive Daytime Sleepiness. The combination of *Vamana (Sodhana)* followed by *Saraswata Choorna (Samana Aushadha)* provided comfort to this patient for his forbearing complaints. This is an important finding as the current system of medicine lacks effective management of EDS and a potential area to be explored.

## CONCLUSION:

This combined *Ayurvedic* treatment of above mentioned *Panchakarma* procedures and oral *Ayurvedic* drugs was helpful in treating the patient of Excessive Daytime Sleepiness. This approach may be taken into consideration for further treatment and research work in Excessive Daytime Sleepiness.

## Patient perspective:

The condition caused severe impact on the quality of life of the patient including his personal as well as professional domains. After the follow up, patient was completely satisfied to have significant relief of his complaints.

**Informed consent:**

Written permission for publication of this case study had been obtained from the patient.

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