An Ayurvedic Medicine Protocol In The Management Of Smoking Addiction: A Case Report

[1]Dr. Sudharma S. Rankhamb*,   [2]Dr. Vidya C. Undale,   [3]Dr. Payal P. Wavhal

[1]PG Scholar, Department of Agadatantra evum Vidhivaidyak, Sumatibai Shah Ayurved Mahavdiyalaya, Hadapsar, Pune, India

[2]Associate Professor, Department of Agadatantra evum Vidhivaidyak, Sumatibai Shah Ayurved Mahavdiyalaya, Hadapsar, Pune, India

[3]Assistant Professor, Rasashastra Evum Bhaishajyakalpana, Dr. D.Y. Patil Vidyapeeth [Deemed to be University]'s Dr. D.Y. Patil College of Ayurved & Research Centre, Pimpri, Pune, India.

Abstract:

Smoking addiction poses a significant global health challenge, necessitating innovative approaches to enhance successful cessation. This research paper presents a single case study exploring the efficacy of an Ayurvedic medicine protocol for smoking de-addiction, utilizing the Fagerström Test for Nicotine Dependence [FTND] as a primary parameter. The study focused on a 26-year-old male patient initially seeking treatment for insomnia. Further investigation revealed severe nicotine dependence, prompting the administration of the FTND test, which indicated a moderate level of dependence. The Ayurvedic protocol, tailored to enhance "manas satva guna" and to alleviate withdrawl symptoms, anxiety and stress [signs of ojas depletion as per Ayurveda], was administered over 21 days.

The patient exhibited a remarkable reduction in smoking withdrawal symptoms, with the FTND score decreasing from 7 to 1. This significant improvement in nicotine dependence suggests the potential efficacy of the Ayurvedic intervention in smoking de-addiction. This single case study provides encouraging evidence for the efficacy of Ayurvedic medicine in smoking de-addiction, emphasizing the importance of addressing mental and emotional factors in addiction treatment. The observed reduction in FTND scores indicates a positive outcome, suggesting that Ayurvedic protocols may be a valuable avenue for further exploration in smoking cessation strategies. Future research with larger sample sizes and rigorous methodologies is warranted to validate and generalize these findings..

Key Words: Nicotine dependence, Fagerström Test, Ojakshaya, Withdrawal symptoms, Satva Guna

I. INTRODUCTION

Smoking is a major public health concern, with significant dangers to both individual health and society. The World Health Organization [WHO] estimates that there are over 1.1 billion smokers worldwide [1], which includes 30% men and 7% women [2]. Smoking is a leading cause of preventable death [3]. Nicotine addiction can lead to a range of health issues, including cardiovascular diseases, respiratory problems, and various cancers. Tobacco smoke is known to contain several carcinogens, apart from having other ill effects which include enhanced predisposition towards cardiovascular diseases, pulmonary diseases, peripheral vascular diseases, fetal defects, etc. [4] Despite the well-documented health risks, quitting smoking is a formidable challenge for many individuals. Nicotine resembles acetyl choline enough to initiate a response

from the acetylcholine receptors, which in turn release dopamine, a neurotransmitter which is responsible for addictive behaviors. [5] When smokers withhold cigarettes, they experience a variety of psychosomatic symptoms such as irritability, restlessness, lack of concentration, apart from physically manifested signs such as increased appetite, mouth ulcers and constipation. These signs and symptoms arise as a result of withdrawal of nicotine and its impact on the central nervous system. This makes it difficult for the individuals to stay the course and increases the chances of relapse. [6]

We present the case of a 26-year-old male who initially sought treatment for disturbed sleep. However, during the patient's history-taking, it was revealed that he had severe nicotine dependence and had been attempting to quit smoking unsuccessfully. This case report aims to explore the potential of Ayurvedic medicine in aiding smoking de-addiction while focusing on relieving the psychosomatic symptoms of nicotine withdrawal.

II. BACKGROUND

Patient Information:

26 year old male presented with a complaints of inability to sleep, disturbed sleep and mood fluctuations. A sedentary worker in the IT sector, patient is physically active and takes vegetarian diet. No known previous medical history of surgeries, allergies or hospital admissions was reported. Patient had a family history of Diabetes Mellitus [type II]. Personal history revealed patient has been addicted to cigarettes since past 4 years and consumes approximately 8-10 cigarettes every day. No other addictions were reported. Patient also did not report any other major health problems, apart from a few instances of constipation.

The patient's information is detailed in the Case Report Form [CRF], ensuring confidentiality and privacy.

Clinical Findings:

A comprehensive physical examination and laboratory tests were conducted to assess the patient's overall health and baseline parameters. The results of these assessments were within normal limits, indicating no underlying medical conditions that could contribute to the patient's nicotine dependence or disturbed sleep patterns.

Table 1: Clinical findings

| Examination	Observed Value
Heart Rate	82/min
Blood pressure	110/70 mm of Hg
Respiratory System	Air entry bilaterally equal and clear
Cardiovascular system	$S_1 S_2$ Normal
Central Nervous System	Conscious, Oriented, No obvious deficits.
Per Abdomen Examination	No abnormalities
Urine	4-6 times/day
Stool	1-2 times/day, occasional constipation
Skin, Eyes, Nails	No pallor/icterus/staining
Extremities	No edema or other abnormalities

All laboratory tests including routine haematology, serology, urinalysis, Chest X-ray and ECG were within normal limits.

III. METHODOLOGY

Timeline:

A timeline chart to provide a visual representation of the key events in the patient's treatment journey, highlighting important milestones and follow-up dates is presented below.

Fig.1 : Timeline of the case interventions and follow-ups
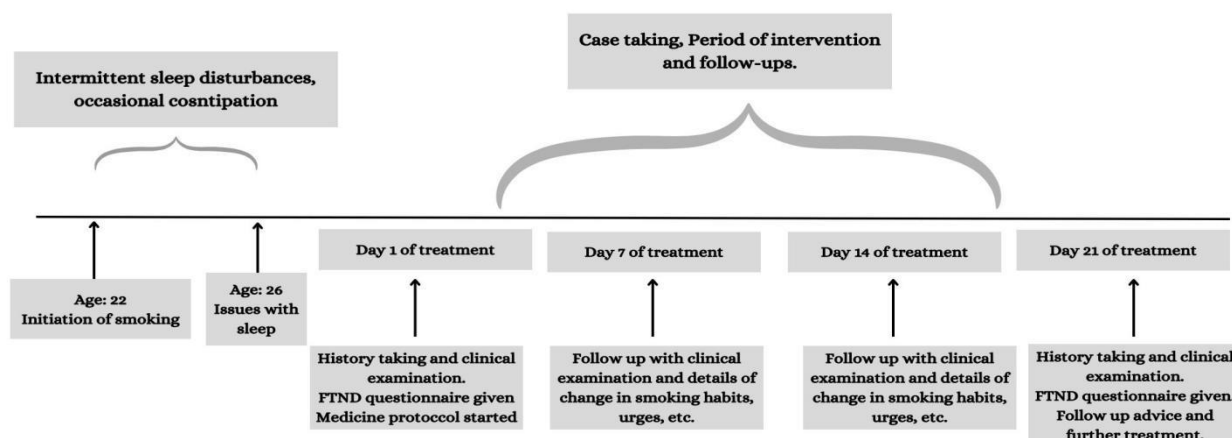
Diagnostic Methods:

Apart from case taking, clinical examination and laboratory findings, the The Fagerström Test for Nicotine Dependence [FTND] [7] questionnaire was administered to assess the patient's level of nicotine dependence and addiction severity. The test score was used to gauge the patient's readiness and need for smoking de-addiction intervention [Annexure 1]. The test was given again on Day 21 to compare the before and after score i.e. level of dependence.

Therapeutic Intervention:

The therapeutic intervention involved the administration of an Ayurvedic herbomineral mixture tailored to the patient's specific needs. The mixture was advised to be taken thrice a day after meals. Specific components of the herbo-mineral formulation, their route of administration, and any notable changes during the treatment period are described in Table 2.

Table 2: Composition of polyherbal mixture administered for 21 days

Sanskrit Name	Scientific Name/ English Name	Dose
Akika **Pishti [8]**	Agate Gem triturated with *Rosa centifolia* aqueous extract	125mg
***Jatamansi* [9]**	*Nardostachys jatamansi* DC	250mg
***Bramhi* [10]**	*Bacopa monnieri*	250 mg
***Ashwagandha* [11]**	*Withania somniferum*	250mg

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Follow-up and Outcome:

The patient underwent two follow-up assessments at 7 and 14 days into the treatment, with a final follow-up at day 21. The main parameters assessed during these follow-ups included the number of cigarettes smoked per day, the patient's overall well-being, and the quality of sleep. The treatment protocol has been continued further in tapered doses.

IV. RESULTS & DISCUSSION

The patient exhibited a significant reduction in the number of cigarettes smoked per day, with complete smoking withdrawal achieved by day 21. The FTND score decreased notably, indicating reduced nicotine dependence. Additionally, the patient reported an improvement in the quality of sleep during the course of the treatment. No adverse events or side effects were noted during the treatment, suggesting that the Ayurvedic herbo-mineral mixture was well-tolerated by the patient. [Table 3]

Table 3: Follow-up wise Clinical Findings

Day	Clinical findings	Smoking frequency cigarettes/day	FTND score
Day 1	C/o Disturbed sleep O/E Haemodynamically stable	9-10	7 [Moderate level of dependence]
Day 7	C/o Disturbed sleep ↓ Mild Irritability, restlessness. O/E Haemodynamically stable	4-5	N/A
Day 14	C/o Disturbed sleep ↓, occasional restlessness O/E Haemodynamically stable	4-5	N/A
Day 21	C/o No new complaints. Relatively less irritability. O/E Haemodynamically stable	1-2	1 [Low level of dependence]

The presented case report explores the use of Ayurvedic medicine in the treatment of smoking de-addiction. Smoking remains a significant global public health concern due to its detrimental impact on individual health and its association with a range of diseases. Despite the well-documented health risks, quitting smoking is challenging for many individuals, and modern medicine has limited options for smoking cessation. This case report sheds light on the potential of Ayurvedic medicine, specifically focusing on enhancing "*manas satva guna*" [mental clarity and balance] and reducing stress, as a holistic approach to smoking de-addiction by possibly aiding in management of nicotine withdrawal.

It is said that nicotine addiction is one of the toughest to quit. The substance withdrawal after prolonged dependence causes various psychosomatic symptoms such as restlessness, irritability, anxiety, bowel disturbances, etc. Most of these symptoms can be correlated in Ayurveda with a decrease in the *satvik guna* [calm and balanced property] and depletion of *ojas* [essence of all seven *dhatu* or bodily tissues that is vital for life, characterized by *bala* i.e.immunity][8] [9]. Depletion of *ojas* is indicated by symptoms such as anxiety, restlessness, irritability, mental debility, etc., which can be correlated with the withdrawal symptoms[10]. The primary focus of this treatment protocol was to enhance the *satvik guna* and replenish *ojas*.

The selected herbomineral mixture was carefully curated towards this goal. Akika Pishti is the triturated powder of agate gem with *Rosa centifolia* aqueous extract. Akika is used in Ayurveda practice to pacify the bodily humor *Pitta.* It is *soumya* [gentle], *shita* [cold potency] and therapeutically useful for replenishing *ojas*, enhancing *mastishka bala* or mental and nervous strength, improving memory, and as a tonic in mental debility. It is a relatively less explored medicine in Ayurveda[11], [12]. *Jatamansi* [*Nardostachys jatamansi* DC] is proven useful in neurological disorders including hysteria, epilepsy, mental debility, insomnia, etc[13]. Bramhi [*Bacopa monnieri*] is also used in neurological diseases, memory problems as well as

psychological diseases owing to its proven high binding capacity to CNS receptors[14]. *Ashwagandha [Withania somniferum]* is an anxiolytic, neuroprotective herb which promotes better sleep, enhances cognition and is also an excellent *Satvik rasayana [*anti-stress agent][15]. The synergistic activity of these herbs may be responsible for regulating the neurotransmitter responses of acetyl choline and dopamine that are involved in nicotine dependence, thus reducing the withdrawal symptoms and aiding de-addiction.

The primary outcome of this case report was the patient's significant reduction in the number of cigarettes smoked per day and the subsequently lowered nicotine dependence by day 21. The reduction in the Fagerström Test for Nicotine Dependence [FTND] score is a tangible indicator of the patient's progress in achieving smoking de-addiction.
 This result is promising and suggests that Ayurvedic interventions may be effective in reducing nicotine dependence.

In addition to addressing nicotine dependence, the Ayurvedic treatment also led to an improvement in the patient's quality of sleep. Nicotine withdrawal symptoms, including insomnia, can be challenging during the process of smoking cessation. The fact that the patient experienced better sleep quality can be attributed to the overall reduction in stress and improved mental well-being, as targeted by the Ayurvedic intervention.

Another noteworthy aspect of this case is the absence of any reported adverse events or side effects during the treatment period. This indicates that the Ayurvedic herbomineral mixture was well-tolerated by the patient. Safety and tolerability are critical considerations in any medical intervention, and the absence of adverse events in this case suggests that Ayurvedic treatments may be a safe option for those seeking smoking de-addiction.

While this case report provides promising insights into the potential of Ayurvedic medicine in smoking de-addiction, it is essential to recognize that this is a single case study with a limited sample size. Further research and clinical trials with larger cohorts are needed to establish the efficacy of Ayurvedic interventions for smoking cessation. Randomized controlled trials should be conducted to compare Ayurvedic treatments with conventional smoking cessation methods, allowing for a more robust evaluation of their effectiveness.

Additionally, it is crucial to consider the cultural and individual preferences of patients when choosing treatment options. Some individuals may be more inclined to explore traditional and holistic approaches like Ayurveda, and it is important to provide a range of options to support smoking de-addiction.

In conclusion, this case report provides an intriguing avenue for further research and exploration of Ayurvedic medicine as a complementary or alternative approach to smoking de-addiction. It highlights the importance of considering holistic and traditional treatment modalities in addressing the complex issue of nicotine addiction, offering hope for those struggling to quit smoking.

V. CONCLUSION

This case report highlights the potential of Ayurvedic medicine in the treatment of smoking de-addiction, particularly focusing on enhancing "*manas satva guna*" and reducing stress. While further research and clinical trials are needed to confirm the efficacy of Ayurvedic interventions, this case provides a promising avenue for exploring alternative approaches to smoking cessation beyond modern medicine. It underscores the importance of considering holistic and traditional treatment modalities in addressing complex health issues like nicotine addiction.

VI. ACKNOWLEDEMENTS

VII. CONFLICT OF INTEREST

The authors declare no conflict of interest

VIII. REFERENCES

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