Review Article

# MANAGEMENT OF TOBACCO DEPENDENCE IN A CLINICAL PRACTICE - A REVIEW

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**Abstract:**
Tobacco use is a major preventable cause of premature death and disease in India and over 1 million people die due to tobacco use in India. Oral health professionals play an important role in encouraging tobacco-free- lifestyles. Oral health professionals should counsel their patients not to use tobacco in any form. They should also emphasize the anti-tobacco message and refer the patients to smoking cessation services. Dentists are responsible to motivate and educate patients concerning the hazards of tobacco to their oral and systemic health. The different approaches like 5A's and 5 R's and pharmacotherapy are various strategies for tobacco cessation. Tobacco cessation is necessary to decrease morbidity and mortality related to tobacco use. This paper focuses on the management of tobacco dependence in clinical practice.

It can be concluded that patient who decides to quit can benefit from their doctors' support. Physicians should be taught about tobacco dependency and how to treat it as part of their medical education, residency training, and continuing medical education.

**Keywords:** TOBACCO DEPENDANCE, PHARMACOTHERAPY, NICOTINE

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## INTRODUCTION

Portuguese introduced tobacco to India 400 years ago. Since then, Indians have used tobacco in various forms. About 33% of all women and 65% of all men use tobacco in some form[1].

Christopher Columbus introduced tobacco to the world in 1492. Later the followers of Columbus, the Portuguese and the Spanish sailors carried it to all the parts of the world in the late century.

At first Europeans heralded it as a medical marvel. Later tobacco smoking was recognized as a health hazard. King James I of England issued the first official condemnation of tobacco, "A counterblast to tobacco" in 1604, in which he warned his subjects that the "habit of smoking tobacco is disgusting to sight, repulsive to smell, dangerous to brain and noxious to the lung"[1]

Tobacco use is a major preventable cause of premature death and disease.[2] there are two basic types of tobacco: Smoked and unsmoked. Smoked tobacco is available in various forms like cigarettes, pipes, cigars, clove cigarettes, and bidis. Bidis are small, brown, hand-rolled cigarettes imported primarily from India and other Southeast Asian countries. In Asian countries they used a temburni

leaf to wrap tobacco. The temburni leaf has low combustibility due to which bidis must be puffed constantly to remain lit. Consequently, bidi smokers inhale more deeply and more frequently, increasing the delivery of tar and other toxins.[3]

Unsmoked tobacco also known as spit tobacco and by the industry coined term "smokeless" tobacco-includes chewing tobacco and moist oral snuff. Chewing tobacco is nothing but a cut tobacco leaf. It is marketed as either loose-leaf, plug, or twist. It is chewed and then held in place in the mouth. Moist oral snuff is a finely ground tobacco leaf also known as "dip". It is available as either loose or packaged in sachets and is placed in the labial or buccal vestibule without chewing for about thirty minutes. Nicotine present in tobacco products gets absorbed through the oral mucosa.[3]

When a person stops using tobacco the nicotine level in the brain drops. This decreased level of nicotine in the brain triggers processes that contribute to the cycle of cravings and urges that helps in maintaining addiction. Prolonged nicotine exposure in the brain causes nicotine dependence and attempts to stop cause withdrawal symptoms that are relieved with renewed tobacco use.

Management of tobacco dependence is nothing but management of tobacco addiction or nicotine addiction. Tobacco dependence involves physical and pathological factors that make it difficult to stop using tobacco, even if the person wants to quit. Nicotine releases a chemical called dopamine in the brain as other addictive drugs.[4,5] Release of dopamine causes mood-altering changes that make the person temporarily feel good. Chewing or smoking tobacco delivers nicotine to the brain within 20 seconds, which makes it very addictive-comparable to opioids, alcohol, and cocaine. This "rush" is a principle part of the addiction.

## DISCUSSION

Identifying tobacco users is the initial step in the management of tobacco dependence. One-third of tobacco users see a dentist. Tobacco users also see physician assistants, nurses, nurse practitioners, respiratory, counselors, physical and occupational therapists. Virtually all clinicians are in a position to intervene with patients who use tobacco. About 70% of tobacco users want to quit. For such cases, physician's advice to quiet could be an important motivator to stop smoking. Effective identification of tobacco use status not only opens the door for successful intervention but also it guides clinicians to identify appropriate interventions based on patient's tobacco use status and willingness.

The 5A's approach is a model that presents the five major steps in providing a brief intervention in the primary care setting. Following are the steps

1. Ask the patient if he or she uses tobacco
2. Advise him or her to quit.
3. Assess willingness to make a quit attempt.
4. Assist those who are willing to make a quit attempt.
5. Arrange for follow-up contact to prevent relapse.

These strategies required 3 minutes or less of direct clinician time.[6]

**Diagnostic evaluation**

The Fagerstrom Test for Nicotine Dependence

Please answer the following questions and add up the total score as indicated

1. How soon after waking up you smoke your first cigarette?

| | | |
|---|---|---|
| 1 | Within 5 minutes | 3 points |
| 2 | 6 to 30 minutes | 2 points |
| 3 | 31 to 60 minutes | 1 point |
| 4 | After 60 minutes | 0 points |

2. Do you find it difficult to refrain from smoking in places where it is forbidden, e.g., in church, library, and in the cinema etc.?

| | | |
|---|---|---|
| 1 | Yes | 1 point |
| 2 | No | 0 points |

3. Which cigarette would you hate most to give up?

| | | |
|---|---|---|
| 1 | The first one in the morning | 1 point |
| 2 | All others | 0 points |

4. How many cigarettes do you smoke per day?

| | | |
|---|---|---|
| 1 | 31 or more | 3 points |
| 2 | 21-30 | 2 points |
| 3 | 11-20 | 1 point |
| 4 | 10 or less | 0 points |

5. Do you smoke more frequently during the first hours after waking than during the rest of the day?

| | | |
|---|---|---|
| 1 | Yes | 1 point |
| 2 | No | 0 points |

6. Do you smoke if you are so ill that you are in bed most of the day?

| | | |
|---|---|---|
| 1 | Yes | 1 point |
| 2 | No | 0 point |

Modified from: Heatherton et al., 1991; Characterization of the degree of dependence, according to (12): 0-2 very low; 3-4 low; 5 medium; 6-7 high; 8-10 very high.

Maximum possible score is 10 points.[7, 8]

**Various management for tobacco dependence**

**Psychotherapy**

Motivation is one of the important factors to quit smoking. A person addicted to smoking should try to quit smoking. If the person is not able to quit smoking on their own in such cases, they should go for extensive methods such as psychotherapy. Psychotherapy is derived from behavioral therapy, smoking cessation programs are based on the premise that psychological dependency arises from operant and classical conditioning, and that cognitive processes, personal values, and the functionality of tobacco consumption play an important role in maintaining smoking behavior. Such programs combine psychoeducation and motivational techniques with behavioral-therapeutic elements. Other important factors are the addition of external social aids, techniques to prevent the continuation of smoking, and ways of dealing with short-term relapse.[8]

**1) Individual behavioral counseling**

This type of counseling involves scheduled face-to-face appointments with a trained smoking cessation counselor. In addition to other behavior change techniques, motivation therapy is also included in this individual behavior counseling which is designed to improve a person's impetus to change their behavior. This type of behavior counseling is patient-centered with motivation for change. It also helps the patient to observe positive behavior change through self-examination. The session of psychotherapy is usually conducted weekly after the quit of tobacco use for 4 weeks and these sessions are combined with pharmacotherapy. Longer and multiple sessions seem to be more effective.

**2) Telephone counseling**

Telephone counseling also known as quitlines encourages and support the people who want to quit smoking or who have recently quit. Increased number of calls for counseling by an individual to the quitline increases the chances of a person quitting smoking in comparison with less intensive interventions such as pharmacotherapy, self-help material, and brief advice alone. More than three calls showed better results compare to 1or 2 calls. People who have 1 or more additional phone calls after an initial contact increases their chance of quitting by 25% to 50%. This is a better way of access for people who have busy schedule and limited financial resources. Telephone smoking cessation counseling is effective in clinical trials of the service, it has subsequently been integrated into routine health care.[9]

The "Five R's" counseling algorithm

1. Demonstrate the Relevance of the problem
2. Name the Risks of smoking
3. Explain the Rewards of cessation
4. Discuss the Roadblocks to cessation
5. Repeat all of the above at each session [7]

**Pharmacotherapies for treating tobacco dependence**

To avoid withdrawal symptoms after cessation of smoking nicotine replacement therapy (NRT) is common uses as it provides some blood concentration of nicotine. This reduction in withdrawal symptoms allows the client to focus on the psychological and behavioral changes necessary for successful tobacco cessation. High blood nicotine

concentrations are achieved more rapidly when nicotine is delivered by a cigarette compared to the available NRT products. Compared to tobacco products, nicotine replacement products deliver nicotine more slowly and at lower levels (30-75 percent of those achieved by smoking) and are less likely to be associated with dependence.[10] Nicotine replacement therapy provides nicotine to address physical dependence without exposure to toxic combustion products.[11]

**1) Nicotine patch-**

A graded approach to initial nicotine patch dosing. The nicotine patch dose should be same or slightly more than the total number of cigarettes a person smokes per day. This therapy should be given as per the patient's need and based on withdrawal symptoms. If patient continue to smoke during the first 2 weeks of patch therapy, the treatment plan must be altered. The nicotine patch dose should be increased for patients who experience substantial withdrawal symptoms, such as irritability, anxiety, frustration, loss of concentration, craving, or frequent use of short-acting nicotine-replacement products. There could be patients who did not get the success with the nicotine patch due to an inadequate dose of NRT. In such cases we have to assure the patient that symptoms could be because of inadequate doses of nicotine through the patch and that it is not an adverse effect of nicotine-replacement products. The primary adverse effect of too much nicotine is nausea. Patients should receive four weeks of treatment with an initial patch dose; after that, the dose can be "stepped down by 7 to 14 mg every two weeks. Patients are asked to contact us if they feel uncomfortable about stepping down the dose; in such cases, the current dose is maintained and no further stepping down occurs for 1 or 2 weeks.[12]

**2) Nicotine Gum-**

Nicotine gum is available in both 2 mg and 4 mg doses. Nicotine gum is used as monotherapy rarely, usually recommending either the 2 mg or 4 mg gum in combination with nicotine patch therapy.

Patients should be instructed on how to use nicotine gum properly. Patient should chew the nicotine gum until they feel a mild tingling or peppery taste which indicate nicotine release and then hold the gum in the vestibule for several minutes before resuming chewing. Repeated cycles of chewing and taking the break will allow gradual nicotine absorption and this cycle should be continued for approximately 30 minutes for every gum. [12]

**3) Nicotine Lozenge-**

Nicotine lozenge delivers nicotine through the oral mucosa and provides active self-dosing in response to craving. Compared to nicotine gum, the nicotine lozenge is easier to use. Patients whose first cigarette is within 30 minutes of waking, the 4 mg is indicated, and smokers whose first cigarette is more than 30 minutes after waking, the 2 mg strength is suggested. Nicotine lozenge should be placed between the cheek and gum. [12]

**4) Nicotine Nasal Spray-**

The nicotine nasal spray delivers nicotine more quickly than any of the nicotine replacement delivery systems which help to reduce nicotine withdrawal symptoms. Single dose is one spray in each nostril and each spray contains 0.5 mg of nicotine (total of 1 mg). A clinician should guide the patient to use this spray as 1 spray of nicotine in each nostril can deliver nicotine in a similar amount as 1 cigarette. The clinician should instruct the patient to spray it against the lower nasal mucosa and not to sniff it up into the upper nasal passages. Most patients will use 12 to 16 doses per day if the spray is used as monotherapy. [12]

**5) Nicotine Inhaler-**

The nicotine inhaler is available only on prescription. The nicotine inhaler delivers the nicotine in oral mucosa where it gets absorbed. The 20-minute period needs a total of 80 puffs from an inhaler to obtain 2 mg of nicotine. The inhaler resembles to cigarette rod so we use it with patients for whom the behavioral and tactile aspects of smoking act as trigger. Frequent adverse effects are mouth or throat irritation and occasional coughing. [12]

**6) Bupropion SR-**

Bupropion SR is a monocyclic antidepressant. It inhibits the reuptake of dopamine and norepinephrine. It also has a direct competitive inhibitory effect on the nicotine acetylcholine receptor. Patients begin taking Bupropion SR 1 week before their quit smoking date, at an initial dose of 150 mg/d for three days followed by 150 mg twice

daily for approximately 6 to 2 weeks, although it can safely be used longer. Bupropion SR can be stopped directly without tapering the dose. Bupropion SR can be used in combination with NRT and with varenicline. [12]

**7) Varenicline-**

Varenicline is a partial nicotine agonist of the α4β2 subtype of the nicotinic acetylcholine receptor. Partial agonist activity relieves nicotine withdrawal symptoms and craving, while the antagonist activity blocks the reinforcement effects of continued cigarette smoking. Dose through first week of treatment with varenicline is 0.5 mg once daily for 3 days and then twice daily for four days, dosage is then ramped up to 1 mg twice daily for one week. [12]

## CONCLUSION

Nicotine sustains tobacco addiction by acting on nicotinic cholinergic receptors in the brain to trigger the release of dopamine and other neurotransmitters is a major cause of disability and premature death. Addiction occurs when tobacco consumers begin to rely upon tobacco to modulate mood and relieve withdrawal symptoms or arousal. Tobacco dependence is an addictive disorder characterized by vulnerability to relapse and requiring ongoing rather than just acute care. The development of other drugs that act on nicotinic receptors and other mediators of nicotine addiction is likely to further enhance the effectiveness of smoking-cessation pharmacotherapy.

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