Case Report

Combination of behavioral therapy and varenicline for smoking cessation: Time to beat nicotine

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Abstract

India is the second largest tobacco consumer and the third largest tobacco producer in the world. The current trends of tobacco use in India includes 1 million deaths per year, and the problem is worsening, and also, tobacco use will cause 13% of deaths in India by 2022. To control this number, it is an alarming situation to work on the main etiology. Smoking cessation programs are considered very useful in helping tobacco users to quit, as it is a very difficult addiction to break and effective approaches are required. So, authors reported a case of 61-year-old male patient who was a chronic smoker and used to smoke 20–25 cigarettes per day. He started noticing the ill effects of tobacco in the body, so he finally decided to seek help from doctor. His habit reduced to half in few days, and finally he completely quitted smoking with the help of behavioral therapy and pharmacotherapy.

Keywords: Addiction, champix, nicotine, smoking cessation, varenicline

Introduction

Tobacco smoking remains the leading preventable cause of death, and more than five million people die globally from the effects of tobacco every year. It is reported that by the year 2030, the death toll is likely to exceed eight million people a year.[1] Tobacco smoke contains more than 7000 chemicals and around 40 carcinogens, including nicotine (most addictive substance), tar, and several others. The "forgotten killer," carbon monoxide (CO), detected in breath analyzers is not mentioned very often.[2]

When evaluating cessation methods, it is important to investigate the effectiveness of various cessation methods which were performed in various randomized controlled trials and retrospective population survey.[3] So, it is the time to help the population to know about the facts of tobacco and how tobacco affects the body and then helping them to quit tobacco, so that those can play role models for others. Hence, this case report was planned to guide and help an individual in quitting smoking with the help of behavioral as well as pharmacological support.

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Beginning of the Habit—Smoking at Young Age

A 61-year-old married patient was referred to the hospital for helping to quit tobacco. He reported to the hospital and has been trying "Cold Turkey" (to stop the habit abruptly) many times but was not been able to quit. He was smoking for the past 34 years, and the frequency of intake was 20–25 cigarettes per day. The patient started smoking when he was in college. At that time, he considered himself to be a "social smoker"—he smokes only once or twice in a week, when he was with his friends. Then later, when he was into job, his frequency of smoking increased day by day. Also, by the end of work he used to smoke to relieve stress. Over time, his smoking increased to the point where he felt like he needed to smoke throughout the day. He started craving for cigarette, if unavailable he had severe withdrawal symptoms which

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were unmanageable and by the end of the day he suffered from stress and acidity. He had misbelieved that the day he decides to quit smoking, he will be able to do so successfully without any ill effects or withdrawal symptoms. This is how he spends many years continuing this habit to relieve his stress. His family always forced him to quit smoking, but because of his misbelief he never listened. Gradually, when he noticed that after trying to quit, he had many withdrawal symptoms like altered taste, shortening of breath, difficulty in taking food, irritation, acidity, and so on. This made him worried, and then finally he decided to seek help from a doctor.

Smoking Cessation

Generally, the most effective way to help in quit smoking is by offering targeted smoking cessation combined with behavioral therapy as well as pharmacotherapy. The counseling includes both behavioral therapy and pharmacotherapy with the quit coach who helps the person in his quit journey. Therefore, the therapy is designed based on the individual's personality and demographic and healthcare profile as determined by the tobacco cessation specialist.

Counseling Instructions and Method Used

The first step toward tobacco cessation is to ascertain the current situation of a patient. After knowing the demographic details of the patient, the specialist did a quantitative assessment. Quantitative assessment includes a few parameters like pulse rate, blood pressure, oxygen saturation, blood glucose level, peak flow, carbon monoxide level, and breath holding time [Table 1]. The patient was hypertensive and was under medication for the past 12–15 years.

On oral examination, grade 1 leukoplakia was found on the right and left sides of buccal mucosa. Oral submucous fibrosis (OSMF) was also evident on both sides of mucosa. On a hard tissue examination, he had severe tobacco stains, attrition on lower front teeth, and halitosis from mouth. Lymph nodes were non-palpable, and no severe damage to the tissues was found.

Then after the quantitative and general examination, we did Fagerstrom addiction stage assessment.[4] Table 2 shows the addiction level with the help of the questionnaire. The following assessment was elucidated.

After this, we planned the quit date according to his Fagerstrom score. The date was planned after 1 week, and the method was gradual and pharmacological. He was at the contemplation stage, so it became easy for the specialist to concentrate on quitting. A session of 45 minutes was delivered, and the patient was advised to announce his decision to wife, children, tobacco vendor, and friend who not only helped him to quit but also supported him to do well on this difficult journey.

Nicotine Replacement Therapy (NRT)

NRT comes in different forms—chewing gums, lozenge, patches, nasal strays, etc., These all are used for short-term support for the tobacco users. These products cannot be purchased without prescription.[5]

Table 1: Patient quantitative assessment details

Quantitative assessment	Test results
Pulse rate	77 beats per minute
Blood pressure	150/90 mmHg
Oxygen saturation (SpO_2)	96%
Blood glucose level	80 mg/dl
Peak flow	450 L/min
Carbon monoxide (CO) level	12 ppm
Breath holding time	40 sec

Table 2: Addiction stage assessment

Assessment type	Tobacco smokers
Score of Fagerstrom stage	9
Nicotine dependence	High
Physical dependence	Strong
Pharmacotherapy	Recommended

So, we advised the patient to start NRT in the form of a tablet, i.e., varenicline (Champix) which was found to be effective. Nicotine is an addictive drug either in natural tobacco or in synthetic form, these should be used carefully. So, the dose of Champix was explained, i.e., once daily for the first 3 days and then twice for the next 4 days of 0.5 mg. Then after 1 week, twice daily (1 mg) for 12 weeks was prescribed. Also, regular follow-up was done in the form of messages, calls, appointments, quit coaches etc., Apart from NRT, several other supports were also been given like for the stress management, stomach upset, and dizziness which help to cope up with the withdrawal symptoms.

Follow-Up

After 2 days, a telephonic conversation was held, and the patient was asked to tell the withdrawal symptoms and difficulties he faced during quitting smoking. He had carvings, severe gastric problem, increased appetite, and constipation in the first 2 days. These symptoms were managed by the specialist with the help of lifestyle modification and diet counseling.

After 1 week, the patient was recalled and he reduced to only 2–3 cigarettes/day, and he was not able to quit completely. Then, the specialist listened to his problem carefully and counseled and motivated him again with the help of audiovisual aids to overcome his difficulties. Patient also told to replace his tobacco products with water bottle, small boxes of eatables/snacking, and try to divert his mind by keeping himself busy throughout day. Medications were already started by the patient.

After 1-month follow-up, he was successful in quitting cigarettes and cravings were also reduced to half. The patient was extremely happy with his performance, and he was getting confidence in himself. His family members, friends,

and colleagues were also surprised and happy to see such an improvement.

After 3-month follow-up, the patient started noticing the benefits of quitting tobacco. His blood pressure and blood sugar levels were also improved. Quantitative assessment CO level came to 1. The patient's taste has also improved, and he finds himself more active in doing daily activities.

A 6-month follow-up was done, and he was completely free from the addiction of smoking cigarettes. Varenicline was stopped after 12 weeks, and the patient was completely fine.

Discussion

Tobacco in any form causes severe health, economic and social impacts. Tobacco use exposes both the first-hand smokers and the second-hand smokers to many potentially carcinogenic chemicals and diseases.[1]

Nicotine is the most addictive substance in tobacco. Nicotine resembles the naturally occurring neurotransmitter, acetylcholine, which sufficiently attaches itself to a subset of neuronal receptors for this neurotransmitter in the brain "nicotinic acetylcholine receptors." These receptors are present in the midbrain, which release another neurotransmitter called dopamine. Dopamine release is believed to be central to all addictive behaviors, which gives a wow feeling. That's why after 1 or 2 days of stopping smoking, smokers experience withdrawal symptoms like increased appetite, constipation, mouth ulcers, cough, and weight gain.[6] In the index patient also, there were severe withdrawal symptoms like gastric problem, severe cravings, constipation, and increased appetite which lasts for almost 3 months. The increased appetite, weight gain, and constipation arise from termination of nicotine intake, but the others are probably related to other effects of stopping smoking.

Many smokers reported that smoking helps them cope with stress and increases their ability to concentrate which happens due to the release of dopamine that gives relief in stress. The literature suggests that some nicotine withdrawal symptoms such as irritability, anxiety, and certain physical symptoms resemble the physiological stress response and may contribute to stress-related enhancement of desire to smoke.[7]

Several randomized clinical trials have assessed the combination of behavioral counseling and NRT versus behavioral counseling alone; both showed mixed results.[8] But in the present case report, tobacco cessation was performed by behavioral as well as pharmacological method. Regular follow-up was also equally important as it keeps the patient motivated and provides confidence in achieving the goal.

Researchers evaluated the expired air CO by CO analyzer and carboxyhemoglobin in venous blood of smokers more than 35 years ago.[2] Moreover, CO analyzer is easy and quick to use, provides clear and visual presentation of CO results, and collects contextual data on CO readings that could help to understand and adjust future behavior. In the present case, the level of CO level was 12 ppm. In various studies, the CO concentration in exhaled breath of smokers is significantly higher than nonsmokers. The CO threshold of ≥10 ppm is the most commonly used for validating smokers' self-reported abstinence.[9] Providing information on pulmonary function by a spirometry test may increase awareness on the effect of smoking among smokers those who are asymptomatic or have few symptoms and make them decide to quit. If this strategy were to be effective, it could be included in the health promotion activities offered in primary care. In the current case report, the reading of the spirometry was 450 L/min, which is found to be less than normal. It provides the patient to understand and motivates in quitting tobacco.[10]

The goal of nicotine replacement is to reduce the symptoms of tobacco withdrawal. NRT increases the chances of quitting smoking by 1.5–2 times.[6] NRT comes in several forms and is for at least 6 weeks, which increases the chances of long-term success rate for those who are under the care of a health professional or provided a structured support program. Taking varenicline (brand name Chantix or Champix elsewhere) improves the chances of success by about 50% more than bupropion or single-form NRT. Varenicline often leads to sleep disturbance and nausea. Serious neuropsychiatric and cardiovascular adverse reactions have been reported, but in comparative studies these have not found to be more common than placebo or NRT.[8]

Good evidence showed that behavioral interventions delivered can help tobacco users to stop. Thus, behavior support (encouragement, advice, and discussion) from a trained anti-smoking specialist, provided at least weekly until 4 weeks, can increase the chances of long-term success of a quit attempt by about 3–7 percentage points, whether it is given by phone or face-to-face.[8] Group behavioral therapy, involving at least weekly sessions lasting until 4 weeks after the target quit date, can increase the chances of success of a quit attempt by a similar amount or possibly more than individual support. Additionally, scheduled and multi-session telephone support also improves the rates of success for tobacco cessation.

Conclusion

Tobacco users are always worried about the withdrawal symptoms. But they are not aware of the fact that it is actually possible to quit tobacco with the help of behavioral therapy and pharmacotherapy. Dental professionals must expand their horizon and armamentarium to include Tobacco Cessation Centre (TCC) strategies inclusive of their regular preventive and therapeutic treatment modalities. The present patient has proved that "You are so much stronger than you think." It is the right time to join hands together and beat the nicotine.

Key points

As a primary care physician, it is need for an hour to work on the main culprit 'Tobacco' which causes many diseases related

to tobacco. Early prevention and tobacco cessation can lead to long and healthy living. An individualized treatment for tobacco cessation is necessary and should be based on severity of nicotine dependence, probability of developing withdrawal symptoms, medications and patient preferences.

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Conflicts of interest

There are no conflicts of interest.

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