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ALTHOUGH PHARMACOLOGICAL TREATMENT IS SUCCESSFUL IN SMOKING CESSATION, WHAT ARE THE FACTORS THAT REDUCE PATIENTS COMPLIANCE TO DRUGS?

SİGARAYI BIRAKMADA FARMAKOLOJİK TEDAVİ BAŞARILI OLMAKLA BİRLİKTE, HASTALARIN İLACA UYUMUNU AZALTAN FAKTÖRLER NELERDİR?

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Abstract

Introduction: Pharmacological treatment has been shown to increase success in moderate and high nicotine addicts. Although the success of quitting is even higher with three months of regular treatment, the rates of using the treatment are low. In this study, although it was emphasized that patients should use 3 months of regular treatment, the reasons for not using pharmacological treatment were investigated.

Methods: One year after the initiation of smoking cessation treatment, the patients were called at least 3 times, and a questionnaire was conducted with the verbal consent of 281 patients.

Results: A total of 277 (%70.1) of 395 cases included in the study were male and their mean age was 41.35 ± 11.6 (18--79) years. When the duration of treatment use of 281 cases was questioned, it was seen that only 108 (38.4%) completed the treatment. Some patients not used the drugs due to side effects of the drugs (30.6%), some patients (20.2%) thought that the medication will not be effective, some patients (19.7%) thought that they weren't ready to quit, some patients (16.2%) thought that they quit smoking already. Considering the rate of quitting after one year, it was found that 33.8% of them quit smoking.

Conclusion: Although studies have shown that 3 months of regular pharmacological treatment in smoking cessation treatment increases the success of quitting and decreases relapse, it was found that 61.6% of the patients did not use the treatment for three months.

Keywords: Treatment Compliance, pharmacological treatment, nicotine addiction, bupropion, varenicline

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Öz

Giriş ve amaç: Sigarayı desteksiz bırakanların %3–5 başarılı olabilmektedir. Orta ve yüksek nikotin bağımlılarında farmakolojik tedavinin başarıyı arttırdığı gösterilmiştir. Üç aylık düzenli tedaviyle bırakma başarısı daha da yüksek olmasına rağmen, tedaviyi kullanma oranları düşüktür. Bu çalışmada, hastalara 3 aylık düzenli tedavi kullanmaları gerektiği vurgulanmasına karşın, farmakolojik tedaviyi kullanmama nedenleri araştırılmıştır.

Yöntem: Şubat-Aralık tarihleri arasında Sigara Bırakma polikliniğimize başvuran hastaların dosyaları retrospektif olarak incelendi. Hastalar sigara bırakma tedavisi başlangıcından bir yıl sonra, en az 3 kez aranmış ulaşılabilen 281 olgunun sözel olurları alınarak tedavi kullanma nedenlerini içeren anket yapılmıştır.

Bulgular: Çalışmaya alınan 395 olgunun %70,1'i(277)erkek olup yaş ortalamaları 41,35±11,6 (18–79)'dir. Nikotin bağımlılıklarına bakıldığında %44,3'ünün çok yüksek %30,6'sının yüksek bağımlı olduğu tespit edilmiştir. Olguların %63,7'sine (241) vareniklin, %28 'ine (106) bupropion ve %8,2'sine (31) NRT başlanmış; 17'sine sadece davranışsal bilişsel tedavi verilmiştir. Anket yapılan 281 olgunun tedavi kullanma süreleri sorgulandığında sadece 108(%38,4)'nin tedaviyi tamamladığı görülmüştür. Olguların ilaçları kullanmama nedenleri sorgulandığında; %30,6'sı ilaç yan etkisinden kestiğini, %20,2'si ilaçların işe yaramadığına inandığını, %19,7'si bırakmaya hazır olmadığını, %16,2'si zaten bıraktığını düşündüğü için ilacı kestiğini, %5,2'si iş yoğunluğundan ilaç almaya gelemediğini, %2,9'u çok ilaç kullandığını, %2,9'u kendi kendine bırakacağına inandığını, %2,3'ü ilaç kullanmak istemediğini ifade etmiştir. Bir yıl sonunda bırakma oranına bakıldığında %33,8'i sigarayı bıraktığı saptanmıştır. Yaş, cinsiyet, eğitim düzeyi, nikotin bağımlılığı, reçete edilen tedavi ile ilaç kullanma süresi arasında istatistiksel anlamlı bir ilişki saptanmamıştır

Tartışma ve sonuç: Sigara Bırakma tedavisinde 3 aylık düzenli farmakolojik tedavinin bırakma başarısını arttığı, nüksü azalttığı çalışmalarla gösterilmiş olmasına rağmen %61,6 olgunun 3 aylık tedaviyi kullanmadığı saptanmıştır. Hastaların tedaviye uyumu arttırmaya yönelik çalışmalar yapılmalıdır

Anahtar Kelimeler: Nikotin bağımlılığı, farmakolojik tedavi, tedavi uyumu, vareniklin, bupropion

Introduction

The smoking is the main cause of deaths in the world which lead to death of eight million people in a year[1]. In 2008, the global epidemic report of World Health Organization (WHO) prepared M-power package and Turkey has successfully implemented this package. The third article of M-Power package is to help in quitting smoking[2-5]. The role of physicians in the fight against tobacco, "is to apply this item that is to help in smoking cessation and is to provide support for the implementation of other articles in the M-power package. Smoking cessation outpatient clinic is one of the fundamental aspects of the fight against tobacco smoking cessation. One-year success rates of smoking cessation clinic in our country are between 23%-%48,5 which were showed in various studies[6]. Pharmacological treatments available for smoking cessation has been shown to be safe and effective[7,8]. In addition, although smoking-related illnesses, losses and deaths can be prevented by quitting smoking and regular use of pharmacological therapy increase the success rate of smoking cessation, adaptation of patients to pharmacological therapy is low. Our aim is to determine the reasons for noncompliance of patients to the pharmacological therapy and to increase the awareness of the physicians to do studies which improve the compliance of patients to pharmacological treatment.

Materials and Methods

The study was approved by the ethics committee of Health Sciences University Adana City Education Research Hospital dated 17.06.2020 / 920. A total of 395 patients who were admitted to Smoking

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Cessation Clinic of Adana teaching and Research Hospital, Pulmonary Disease Department, for quitting smoking between October 2015 and December 2015 were included in this retrospective study. Data including the demographic characteristics of patients, behavior and attitudes about smoking were recorded. It was learned that whether the patients quit the smoking or not from the patient's files at the end of the third month of treatment. In addition, recommended treatments for smoking cessation and duration of treatments were also recorded. A year later from the beginning of smoking cessation treatment, the patients were called by telephone at least three time. A total of 281 patients who agreed to participate the survey was given a questionnaire. In questionnaire, they were questioned that whether patient quit the smoking or not, duration that patient uses the treatment and the reasons for decline of the treatment. Treatment completion was defined as use of pharmacological therapy regularly for three months.

Statistical Analyses

Statistical evaluations were performed with the Statistical Package for the Social Sciences 22.0 program (SPSS, Chicago, IL, United States). Patients were classified according to the duration of the pharmacological treatment and according to the reasons for the decline of the treatment. Descriptive statistics of the variables, such as frequency, mean, median, standard deviation, and minimum and maximum values were calculated for the quantitative data. Statistical significance was determined with the chi-square test and Mann-Whitney *U* test. Values of $p<0.05$ were considered statistically significant.

Results

A total of 395 patients were included in this study. All parents completed the questionnaire. Out of 395 patients, 277 were males (70.1%) and 118 were females (29.9%). Mean age of the patients was 41,35±11,6 (min-max: 18.0-79.0) years. When patients were classified according to nicotine dependence, we found that 44,3% of patients has very high and 30,6% of patients has high nicotine dependence Varenicline, Bupropion and NRT treatment were given to 241 (63.7% (61.0%)), 106 (28% (26.8%) and 31 (8.2%(7.8)) patients respectively. Seventeen patients (4.3%) had only behavioral and cognitive treatment. When the compliance of the 281 patients who were treated with pharmacological therapy to the treatment questioned; we revealed that 16 patients 16 (5.6%) never used medication, 50 (17.7%) patients used less than 1 month, 61 (21.1%) patients used for a month, 46 (16.3%) patients used for 2 months, 108 (38.4%) used for three-months. (Figure 1).

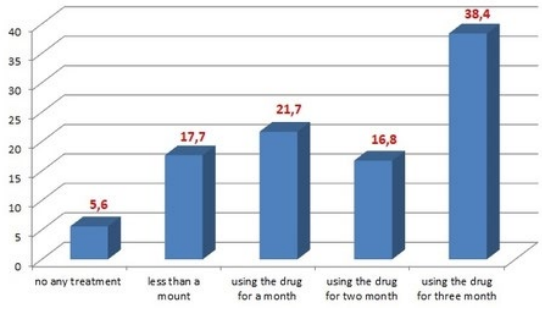

Fig 1. Pharmacological treatment usage durations

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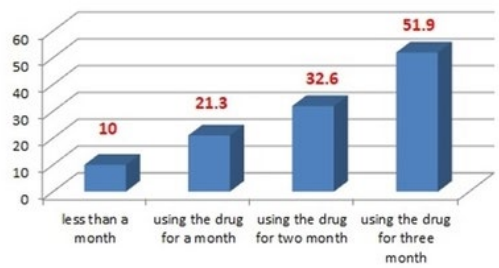

Fig 2. The relationship between pharmacological treatment duration and one-year quit success

We revealed the average compliance of patients to the treatment as 38,4%. Smoking cessation rates for patients according to duration of drug use were 10.0%-21.3%-32.6%-51.9% respectively and the difference between groups was statistically significant (P<0.05) (Figure 2).

The causes of non-compliance of patients to drug use were as follows respectively. Some patients not used the drugs due to side effects of the drugs (30.6%), some patients (20.2%) thought that the medication will not be effective, some patients (19.7%) thought that they weren't ready to quit, some patients (16.2%) thought that they quit smoking already, some patients (5.2%) said they can't come to take the medication because of the intensity of their work, some patients (2.9%) due to that they already have to use multiple drug, some of them (2.9%) believes that they quit smoking themselves, some of them (2.3%) stated that they don't want to use drugs (Table 1). There were no statistically significant relationship between age, gender, education level and nicotine dependence of the patients and treatment adherence respectively (p=0.28, p=0.17, p=0.79, p=0.56). There were no statistically significant difference between the treatment durations of varenicline, bupropion and NRT (p=0.11). In addition, there was also no statistically significant difference between the treatment duration of varenicline and bupropion (p=0,143). At the end of the first year, the success rate to quit smoking was determined as 33.8%. In this study, the frequency of starting to smoke again at first, second, third and more than third months were 24.4%, 23.2%, 19.5% and %32.9, respectively.

Discussion

The first smoking cessation clinic in our country was established in 1992 at the University Hospital. There are 305 smoking cessation outpatient clinics registered to the Ministry of Health in 2013[6].

Table 1. Causes of patient non-compliance to the pharmacological treatment

Causes of drug non-compliance	% (N)
Drug side effect	30.6 (86)
The thought that medications are not working	20.2 (57)
The thought of not being ready or unable to quit smoking	19.7 (55)
Thinking of them that they quit smoking already	16.2 (46)
Because of the intensity of their work, they cannot come to take medicine	5.2 (15)
Because they use multiple drugs	2.9 (8)
Because they believe that they will quitting smoking themselves	2.9 (8)
Because they do not want to use medication	2.3 (6)
Total	100.0 (281)

The smoking cessation clinic where the study was conducted was established in 2014[9]. Psychological addiction, behavioral addiction and neurobiological addiction are effective in the pathogenesis of tobacco addiction. Therefore, the treatment should be to cover all. When

behavioral cognitive therapy and pharmacological treatment are combined, treatment success increases[10]. In our outpatient clinic, after behavioral cognitive treatment is given to the patients, pharmacological treatments are arranged considering the addiction level, additional diseases, and the drugs that they use. Only behavioral cognitive therapy is applied to patients who do not want to use pharmacological treatment and who cannot be given pharmacological treatment (due to drug interaction, comorbidities.). Nicotine addiction is a disease, and its treatment is possible with pharmacological and behavioral cognitive treatment. It is explained to the patients who are started pharmacological treatment that when the treatment is used regularly for three months, the chance of success is high, but relapses may occur when insufficient treatment is used. The first control within the first 15 days, then 3 check-ups once a month, and every three months after the 3rd month are prescribed. However, the adherence of patients to treatment is low. With this study, our aim was to determine the reasons for non-adherence of patients to treatment and so we try to give answer to question that how we can improve the adherence of patients to treatment. The pharmacological treatments in smoking cessation is effective, safe and cost effective[7,8,11-13]. If patients complete 3 months of pharmacological treatment, the smoking cessation rates are 45.4% for varenicline and 48.3% for bupropion [14]. In this study, while one-year success rate of smoking cessation for patients using drug for less than a month is 10 %, for patients using drug for a month is 21.3%, for patients using drug for; two months is 32.6%, for patients using drug for three months is 51.9%. However, many smokers did not use the pharmacological treatment for the recommended duration[15]. In our study, sixteen patients (5.6%) never used medications, 50 patients (17.7%) used medications for less than one month; 61 patients (21.7%) used medications for one month; 46 (%16,3) used for two months; 108 (%38,4) for three months. Drugs used in the treatment of smoking cessation in our country are not covered yet by reimbursement by the Social Security System. However, with regular campaigns, Free Drug Delivery is defined to smoking cessation outpatient clinics authority, During the study period, by the campaign of the Ministry of Health, the varenicline and bupropion were given freely to the patients for three months from our smoking cessation outpatient clinics. In the same period as our study, Celik and colleagues reported that the adherence of patients to the pharmacological treatment in their study as 28.3%[12]. In our study, the adherence rate of patients to the treatment was 38.4%. In our study, we did not find any statistically significant relationship between age, gender, level of education, nicotine dependence treatment (bupropion, varenicline, NRT) and treatment adherence.

In general, treatment adherence is an important problem for scientists. Because when the adherence to the treatment decreases, the success of treatment decreases and cost increases[16,17]. However, the experience about the treatment adherence with other drugs may not be generalized to current smoking cessation treatment. Because many patients believe that smoking is an addiction, in addition the drugs used for smoking cessation has also risk of addiction, so patients think that they must give up smoking without the use of drugs[15,18].

According to our observations, in our clinics, a group of patients gave up the smoking cessation treatment with the thought that they quit smoking. Another group gave up the treatment because of fear that drugs also can lead to addiction. Some of them also do not want to use drugs due to their side effects. In the first

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year of treatment, this study also was asked about the reasons for the decline meds over the phone. Some patients not used the drugs due to side effects of the drugs (30.6%), some patients (20.2%) thought that the medication will not be effective, some patients (19.7%) thought that they weren't ready to quit, some patients (16.2%) thought that they quit smoking already, some patients (5.2%) said they can't come to take the medication because of the intensity of their work, some patients (2.9%) due to that they already have to use multiple drug, some of them (2.9%) believes that they quit smoking themselves, some of them (2.3%) stated that they don't want to use drugs.

The limitation of our study is that obtaining information about the duration of drug use and smoking cessation from patients' oral statement by phone. Furthermore, the use of NRT was less, because varenicline and bupropion were given as free during the study period. It could not be determined that what is the impact of to take the drug free or paid for drug on the adherence to the treatment. Adequate studies on compliance to smoking cessation treatment are not available.

Tobacco use causes enormous health and non-health related costs for society. And it is the cause of many preventable diseases and premature deaths in the world. The World Health Organization (WHO) estimates that smoking globally causes over $ 500 billion economic loss in a year. The cost per life-year saved from the use of pharmacological treatment for quitting smoking ranged from $ 128 to $ 1,450, up to $ 4,400 per quality-adjusted life years (QALYs). This shows that smoking cessation treatments are cost effective[19]. Quitting smoking is lifesaving and contributes significantly to the national and world economy. Therefore, the success of the treatment is extremely important. Since compliance with treatment increases success of smoking cessation, more comprehensive studies should be conducted to analyze treatment compliance.

As a conclusion, in this study, although we found that the smoking cessation rate of patients who used drugs regularly for at least three months was 51.9%, the rate of treatment compliance was low. In addition, we think that the factors suggested by the patients as the reason for discontinuing the treatment can be reduced. We believe that this will be possible by spending more time for the patient and focusing on these factors that reduce the success of the treatment. Indeed, in the later period, when we approached patients based on the data we obtained from this study, we observed that compliance of our patients to the treatment and our treatment success increased even more.

Conflict of Interest

The authors declare that they have no conflict of interest

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