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The Effect Of Smoking On Migrane Attack Frequency And Disability In Patients With Migraine Without Aura

Sigara İçmenin Aurasız Migren Hastalarında Atak Sıklığı ve Maluliyet Üzerindeki Etkisi

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Abstract

Aim: There are several contradictory data about the effect of smoking on attack frequency and disability in patients without aura. We aim to investigate the relation between smoking and attack frequency and disability in patients without aura.

Material and Methods: 110 migraine without aura patients who administered to Gazi State Hospital in 2018 have been included in this study. All of the patients have been diagnosed by the International Headache Society Scale (IHSS-R) criteria. For each patient we recorded their demographic features, smoking status and we analysed the dependency level of smokers with in smokers with Fagerstrom Test for Nicotine Dependency (FTND). We also determine their migraine headache disease duration, attack frequency, triggering factors and Migraine Disability Assessment Test (MIDAS) were applied. We analysed these factors statistically by SPSS.

Results: Among these patients 72 (79,1%) were women. The mean age was 34,82±8,90 years. While 34 (30,9%) of the patients were smoking actively, 15 of them (13,6%) were quitted smoking. The mean number of the attacks that patients had in a months was 5,45±4,97 and the mean disease duration was 11,58±8,43 years. The mean MIDAS score of the patients who smoked was 15,21±6,9 (Grade III) and who didn't was 10,74±4,4 (Grade II) ($t=2.578$, $p<0,001$). There was a statistically significant positive relation between the MIDAS scores and FNDT scores in smoking patients ($r=4, 657$, $p<0,001$).

Conclusion: We have determined that non-smoker patients with migraine without aura had less headache attack frequency and disability from migraine. It can be assumed that apart from other health risk factors reductions it will be useful for smoker migraine without aura patients to quit smoking.

Öz

Amaç: Sigaranın aurasız migren baş ağrısına sahip hastalarda atak sayısı ve maluliyeti üzerine etkisi konusunda çelişkili veriler mevcuttur. Bu çalışmada sigara içme ile aurasız migren atak sayısı ve maluliyet arasındaki ilişkinin araştırılması amaçlanmıştır.

Gereç ve Yöntemler: Gazi Devlet Hastanesine 2018 yılında başvuran 110 aurasız migren baş ağrısına sahip hasta çalışmaya dâhil edilmiştir. Tüm hastalar Uluslararası Baş Ağrısı Derneği Ölçeği (IHSS-R) ölçütlerine göre teşhis edilmiştir. Her bir hastanın demografik özellikleri, sigara içme durumu ve sigara içiyorsa bağımlılık düzeyleri Nikotin Bağımlılığı için Fagerstrom Testi ile (FTND) değerlendirilmiştir. Tüm vakaların aurasız migren hastalık başlangıç zamanı, atak sıklığı, baş ağrısı

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şiddeti, tetikleyici faktörler değerlendirildi ve Migren Engellilik Değerlendirme Testi (MIDAS) uygulandı. Bu faktörleri istatistiksel olarak SPSS ile analiz edildi.

Bulgular: Tüm vakaların 72'si (% 79,1) kadındı. Bu vakaların ortalama yaşı 34,82 ± 8,90 yıl idi. Hastaların 34'ü (% 30,9) aktif sigara içerken, 15'i ise (% 13,6) sigarayı bırakmıştı. Hastalar ortalama 11,58 ± 8,43 yıldır baş ağrısı hastası iken bir ay içinde ortalama 5,45 ± 4,97 adet baş ağrısı atağı geçiriyorlardı. Ortalama MIDAS puanı sigara içen hastalar için 15,21 ± 6,9 (Derece III) iken içmeyenler için 10,74 ± 4,4 (Derece II) (t = 2,578, p <0,001) idi. Sigara içen hastalarda MIDAS skorları ile FNDT skorları arasında istatistiksel olarak anlamlı pozitif ilişki vardı (r= 4, 657, p <0,001).

Sonuç: Sigara içmeyen aurasız migrenli hastalarının daha az baş ağrısı atak sıklığına ve migren maluliyetine sahip olduğu anlaşılmıştır. Sigara içen aurasız migren baş ağrısı hastalarının sigarayı bırakmasının yararlı olabileceği varsayılabilir.

Introduction

Headache is one of the most common daily problems in primary care. Among all of the headache syndromes, with a global prevalence of 14.7%, and a lifelong prevalence between 12% and 18%, migraine without aura has a very important part (1). Migraine headache without aura is not only one of the most common chronic pain and disability syndromes, but also has devastating effects on quality of life and social functioning (home, school and workplace) (2). In addition to its adverse impact on individual health, it also creates serious economic problems due to increased health spending (doctor visits, institutional costs, frequent laboratory tests and imaging etc.) and loss of time at work or school. These patient's headache symptoms are trigged by several factors (3). Until know such factors as sleepiness, tiredness, hunger, alcohol consumption, physical or physiological stress or menstrual cycles are well known triggers for headache. Smoking may have effect on migraine headaches. Smoking has acute and chronic effects on cardiovascular system such as vasoconstriction in brain vessels which may effect on headache triggering mechanisms. The aim of this study is to investigate the effect of smoking on migraine attack frequency and thus quality of life in patient who had migraine without aura patients.

Matherial And Methods

This is a descriptive analytic study. A power analyses revealed that. 110 patients would be sufficient for the study. 205 migraine without aura patients who administered to Gazi State Hospital between 01.01.2018 and 31.12.2018 have selected for this study. Among these 110 patients who were volunteers, using no psychiatric medication or without having a psychiatric disease according to DSM-V and above the age of 18 were included in this study. All of the patients have been diagnosed by the IHSS-R (International Headache Society) criteria. After their general physical examination, a detailed neurological examination was performed in each patient. For each patient we recorded demographic features, their smoking habits (Determined with FTND [Fagerstrom Test for Nicotine Dependency]), disease duration, attack frequency, headache severity (Determined by MIDAS [Migraine Disability Assessment Test]) and trigging factors. Then these subjects were divided into study (Smokers) control (Non-smokers or quitted smoking at least a month ago) groups. We statistically compared data of these two groups.

Table-1. The demographic and other data of the smoker and non-smoker patients

Variables	Smokers (n=34)	Non-Smokers (76)	p
Gender			
Men	12	16	
Women	22	50	
Mean Age (Years)	31,21±9,3	34,55±8,7	t=2,057 p<0,001
Disease Duration (year)			
Man Women	7,25±1,21	9,68±5,04	F=1,258 P=0,025 t=0,847 p=0,547
Mean Attacks per month	6,75±7,25	3,89±4,01	t=1,475 p<0,001
MIDAS (Mean Score)	15,21±6,9	10,74±4,4	(t=2.578, p<0,001)

MIDAS (Migraine Disability Assessment Test)

MIDAS consists of seven questions intended to assess severity of headache and headache-related workforce losses (4). Using this scale, the effect of migraine headache in daily life can be better understood, therapeutic requirements can be more easily identified, and the optimal treatment plan can be easily determined. The MIDAS scale is designed to measure the losses caused by migraine in three major activity areas - work / school, domestic work, and family / community activities. The questions concerning headache in the scale are answered based on the previous three-month period. MIDAS scores can be classified as (0-5) Grade I, little or no disability, (6-10)

Grade II, mild disability, (11-20) Grade III, moderate disability, and (21+) Grade IV, severe disability.

FNDT (Fagerstrom Test for Nicotine Dependency)

This was developed Fagerström et al. (1996) and contains 6 questions intended to determine the level of physical smoking addiction (5). The questions can either be applied face-to-face and else can be completed individually. Possible scores range between 1 and 10, and higher scores indicate higher dependence levels.

Statistical Analyses

The Statistical Package for the Social Sciences (SPSS) version 16.0 was used for statistical analysis. Compliance of data to a normal distribution was confirmed. In the comparison of data of two independent groups, a t-test was used if the compliance had a normal distribution, otherwise a Mann-Whitney U test was used. Chi square tests were used for comparisons of data specified in numbers. A p-value of < 0.05 was considered significant.

Results

The demographic features, data about their migraine disease and their MIDAS scores of the smoker and non-smoker patients are presented at Table-1.

Among all of the subjects 72 (79,1%) were women. The mean age of all of the participants was 34,82±8,90 years. While 34 (30,9%) of the patients were smoking actively. The FNDT, package/year and the initiation of smoking differences between both sexes are presented at Table 2.

The mean score for FNDT was 5,47±1,2 and package/year was 12,14±1,8. The patients who smoked had Grade III and who didn't have Grade II MIDAS scores. The mean FNDT score of the subjects in the study group was 5,47±1,2 while they had a 12,14±1,8 package/year score. There was a statistically significant positive relation between the MIDAS scores and FNDT scores in smoking patients (r=4, 657, p<0,001) and package/year scores (r=3,84, p<0,001).

Table-2. The FNDT, package/year and initiation to start smoking comparison between both genders

	MEN	WOMEN	p
	N=12	N=22	
FNDT	5,67±1,7	4,98±1,9	F=1,204 p=0,034
Package/year	14,24±0,9	11,67±2,2	F=1,547 p=0,002
Initiation to smoking	19,25±2,7	25,07±1,2	F=1,987 P<0,001

The triggers of the migraine are reported among both groups were reported as stress (n=98, 94,4%), hunger (n=83, 75,4%), physical activity (n=82, 75,9%), menstruation (n=46, 63,4%) and cigarette smell (n=33, 29,7%).

The medication of the migraines was as follows; analgesic (n=69, 64,4%), triptane (n=32, 29,7%), prophylactic agent and triptane (n=12, %10,7).

Discussion

Our results implied that the quality of life of the smoker patients who had migraine without aura smoker's subjects had worse MIDAS scores and had more frequent migraine attacks compared to non-smokers. A recent study has reported that might lead to a clinical deterioration in migraines, particularly in migraines with aura (6). In a study conducted among medical students, the migraine attack frequency of the smoking group was higher than in the non-smoking group (7). The results of this study conducted in Spain illustrate the relationship between migraine and smoking well. In a sample of 361 medical students, 29% of migraine sufferers were smokers, whereas only 20% of non-migraine sufferers were smokers. Among the women, 22% of all women were smokers, whereas 34% of migraine sufferers were smokers. The researchers also found a correlation between the number of cigarettes smoked (cutt off value of five cigarettes per day) and the frequency of migraines; the participants who smoked more had more frequent migraines. There have been different hypotheses trying to explain the possible relationship between migraine and smoking. In this regard three important viewpoints are discussed (8). One of them pointing out that the fact of increased platelet aggregation in smokers which have also triggers migraine headaches. The other data suggest that the possible reducing pain effect of the smoking through nicotine is initiated through increasing or activation secretion of beta endorphin synthesis. Also in recent years a hypothesis about a possible genetic relation between smoking and migraine is also discussed. Chen et al. claimed the effect of nitric oxide on migraine which contributes that migraine it is more common in female smokers (9). Today all of this tree viewpoints generally accepted to have part in the etiology. In a vicious circle it is very possible that smoking leads to migraine and patient's possibility tend to smoke more to relieve their pain. As a conclusion our study is pilot study. Also it is well known that all over the world men tend to smoke more however the man participants is lower in our study as migraine is most frequently seen in women. It can be assumed that apart from other health risk factors reductions it will be useful for smoker migraine without aura patients to quit smoking. More studies about these patients are needed.

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