A Multicenter Family Practitioners' Research on the Prevalence of Obesity and Hypertension

Obezite ve Hipertansiyon Üzerine Çok Merkezli Bir Aile Hekimliği Araştırması

ABSTRACT

OBJECTIVE: Hypertension and obesity threaten public health. Our aim was to study the prevalence of obesity and hypertension in our community and their relation to feeding habits.

MATERIAL and METHODS: This was a cross-sectional descriptive study and it was performed in the period of January 2014 - January 2015. A total of 1013 people living in the city center participated in the study. Relationships between body mass index values, blood pressure values, and feeding habits were analyzed.

RESULTS: In this sampling, the prevalence of obesity was 27.30%, and the prevalence of hypertension was 28.13%. Among patients with hypertension, 99 patients were newly diagnosed asymptomatic cases. Blood pressure control rate was 48.90% in patients with a history of hypertension.

CONCLUSION: The relationship between obesity and hypertension is apparent. The control rate of hypertension was high but not satisfactory. There are still a large number of undiagnosed patients with hypertension in the community. Family physicians may begin to deal with this struggle by increasing awareness of these conditions.

KEY WORDS: Hypertension, Diet, Exercise, Obesity, Prevalence

ÖZ

AMAÇ: Obezite ve hipertansiyon toplum sağlığını tehdit etmektedir. Bu çalışmamızda, yaşadığımız toplumdaki obezite ve hipertansiyon sıklığını belirlemeyi ve bu hastalıkların yeme alışkanlıkları ile ilişkisini araştırmayı amaçladık.

GEREÇ ve YÖNTEMLER: Kesitsel tanımlayıcı desende planlanan bu çalışma Ocak 2014 - Ocak 2015 tarihleri arasında gerçekleştirildi. Çalışmaya şehir merkezinde yaşayan 1013 gönüllü katıldı. Hastaların vücut kitle indeksi değerleri, kan basıncı değerleri ve beslenme alışkanlıkları arasındaki ilişkiler analiz edildi.

BULGULAR: Bu örneklemde, obezite sıklığı %27,30 ve hipertansiyon sıklığı %28,13 olarak saptandı. Hipertansiyonu olan hastalar arasında, yeni tanı konmuş 99 asemptomatik olgu vardı. Kan basıncı kontrol oranı hipertansiyon öyküsü olan hastalarda %48,90'dı.

SONUÇ: Obezite ve hipertansiyon arasındaki ilişki belirgindir. Hipertansiyon kontrol oranı yüksekti ancak bu değer tatmin edici değildi. Hâlâ toplumda hipertansiyon teşhis edilmemiş çok sayıda hasta vardır. Aile hekimleri hipertansiyon ve obezite ile mücadeleye bu hastalıklara olan farkındalığı artırarak başlayabilirler.

ANAHTAR SÖZCÜKLER: Hipertansiyon, Diyet, Egzersiz, Obezite, Sıklık

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INTRODUCTION

Despite many efforts, epidemics of obesity and hypertension stand as a big problem threatening our lives. Reports present that about a third of the adult population and a tenth of school age children are obese. (1-5) Likewise, hypertension also affects about one-third of the adult population and one tenth of children. (5-9) Management of obesity and high blood pressure can be possible only when the magnitude of the problem is well documented. The awareness about these diseases must be increased, and patients seeking solutions must be mainly guided by primary care physicians.

Obesity is apparent, but hypertension can only be diagnosed by random blood pressure measurements. Previous studies presented that there are many hidden hypertensive patients who have never been had their blood pressure measured. Moreover, it is known that many hypertension patients do not continue their treatment even if the diagnosis has already been made. (10) The guidelines show that, if specific targets cannot be achieved in hypertension cases, mortality and morbidity increase. (11,12) The follow-up of hypertensive patients is as important as their identification.

It has been found that obesity is associated with several diseases including cancer. (13,14) The treatment requires a multidisciplinary approach to obesity. While diet and exercise are the main applications in the fight against obesity, psychotherapy, hormonal therapies and bariatric surgery are the other treatment alternatives. (15-17)

In the present study, we aimed to investigate the prevalence of obesity and hypertension in Bursa. We also aimed to find out the eating characteristics of the population and its relations with obesity and hypertension.

MATERIAL and METHODS

Study design: This was a cross-sectional descriptive study.

Selection of study subjects: Bursa is a big city located on the western side of Turkey with a population of more than two million. There are 735 family doctors working in Bursa and 483 work in the city center. Twenty family doctors working in the city center were invited to participate in the study. There were three major regions in the city named as Osmangazi, Yildirim and Nilüfer and family doctors were randomly selected to represent each of these regions. One hundred persons aged ≥20 years were randomly selected for each family practitioner from their patient list. Subjects were invited to the study by telephone contact during January 2014 - January 2015.

Data collection: Socio-demographic data including smoking habits, marital status, education and employment were collected by personal interviews and weight, height and blood pressure measurements were performed. Blood pressure measurements were repeated three times in the same visit and the mean value was calculated. Obesity was classified as described by the World Health Organization. (18) Overweight was defined as body mass index (BMI) greater than or equal to 25.0 kg/m2 and less than 30.0 kg/m2, and obesity was defined as a BMI greater than or equal to 30.0 kg/m2. Hypertension was diagnosed when systolic blood pressure more than or equal to 140 mmHg and/or diastolic blood pressure more than or equal to 90 mmHg or a history of antihypertensive treatment was present.

A questionnaire was given to determine personal preferences. The amount of water drunk per day, fast food consumption per month, bread consumption per day, and frequency of eating meat, vegetable and dairy products were noted.

An exclusion criterion was pregnancy since transient BMI and blood pressure changes occur during this period.

The ethical approval for the study was obtained from the ethics committee of the hospital. Patients were informed about the study, and their written approvals were also obtained.

Statistical Analysis

Continuous variables were expressed as median (minimum-maximum) while categorical variables were presented as the frequency of the related percentage. Between groups, comparisons were performed using the Kruskal-Wallis or Mann-Whitney U tests. For categorical variables between groups, comparisons were performed using the Pearson chi-square, Fisher exact or Fisher-Freeman-Halton tests. Statistical analysis was also performed using SPSS v.21 and the level of significance was set at α=0.05.

RESULTS

Three of the family doctors could not carry on with the study, and a total of 300 subjects dropped out from the study. Seven deaths were reported out of 1700 patients during the study and 149 patients (8.70%) moved from the region of the family doctor and could not be reached. Twenty-one of the participants were pregnant, and were excluded from the study. A total of 1013 subjects (66.51%) out of 1523 agreed to participate in the study. The final group consisted of 536 (52.90%) female and 477 (47.10%) male participants.

The prevalence of hypertension was 28.13 % (n=285) and 34.73 % (n=99) were asymptomatic new cases in this subgroup. A total of 20 asymptomatic cases (20.20%) were classified as stage 2 according to the JNC7 criteria. There were 186 patients with a history of hypertension, of which the blood pressure was regulated in 48.92% (n=91).

The prevalence of obesity was determined as 27.30 %. The distribution of BMI is presented in Table I. The hypertension frequency was statistically different between the BMI subgroups (Table II). There were statistically significant differences between the BMI groups for fast food consumption, and consumption of meat and dairy products (Table III).

Some meals and consumptions of the number of slices of bread, fast food, vegetable and dairy products were significantly different between patients with and without hypertension. Vegetable and dairy product consumption was higher in the hypertensive group. Daily bread consumption was higher among patients with a previous history of hypertension (p<0.001) (Table IV). However, this relationship was not observed in patients with newly diagnosed hypertension.

Table I: BMI distribution in the study population.

	Number of patients (n=1013)	%
Underweight	13	1.30
Normal	346	34.20
Overweight	377	37.20
Obese	277	27.30

DISCUSSION

The prevalence of obesity was 27.30%, and the prevalence of hypertension was 28.13%. The prevalence of obesity and hypertension was similar to the results in the literature. (4,8,19,20) We found that nearly half of the patients with hypertension were determined to have their blood pressure regulated. In previous studies, control rates of blood pressure among patients with hypertension were quite low, and there were reports that achievement in blood pressure control is increasing worldwide. (21-24)

The relationship between hypertension and obesity has been well documented. We have found that 48.70% of the patients with obesity also had high blood pressure. The frequency of hypertension was doubled when patients passed from normal

Table II: Hypertension and BMI relationship.

	Underweight (n=13)	Normal (n=346)	Overweight (n=377)	Obese (n=277)	p-value
Hypertension	0 (0%)	50 (14.50%)	100 (26.50%)	135 (48.70%)	**<0.001**

Table III: Relationship between BMI and nutritional habits of the participants.

	Underweight (n=13)	Normal (n=346)	Overweight (n=377)	Obese (n=277)	p-value
Water drinking (glass of water/day)	3(1-10)	6(0-25)	5(0-20)	6(0-20)	0.095
Number of meals in a day	3(2-5)	3(2-7)	3(1-7)	3(1-6)	0.609
Number of slices of bread/day	4(1-12)	4(0-24)	5(0-24)	4(0-24)	0.209
Fast food/month	2(0-6)	0(0-7)	0(0-6)	0(0-4)	**<0.001**
Meat/week	1(0-3)	2(0-10)	2(0-15)	2(0-14)	**0.040**
Vegetables/week	3(1-7)	5(0-15)	5(0-20)	5(0-20)	0.056
Dairy products/week	6(46.20)	277(80.10)	319(85,30)	236(85.50)	**0.001**

Table IV: Nutritional comparisons of patients with and without hypertension.

	Normal Blood Pressure (n=726)	Hypertension (n=285)	p-value
Water drinking (glass of water/day)	5(0-25)	5.50(0-20)	0.774
Number of meals in a day	4(1-7)	3(1-7)	**0.006**
Number of slices of bread/day	5(0-24)	4(0-24)	**0.002**
Fast food/month	0(0-7)	0(0-5)	**<0.001**
Meat/week	2(0-15)	2(0-14)	0.921
Vegetables/week	5(0-20)	6(1-20)	**0.016**
Dairy products/week	578(81)	251(88.40)	**0.005**

to overweight or overweight to obese. There is evidence that weight loss improves blood pressure control, and this study supports findings that the higher the blood pressure, the greater the BMI. (25)

We designed the study to document eating habits of the patients by asking about their nutritional habits. The results were interesting: patients answered our questions according to what they should be. For example, fast food consumption rate was low among obese people. There was no heavy fast food consumer among the participants, and it may explain the paradox. More than this, the questionnaires were asked by the family physicians, and the answers might not have been honest. The last possibility is that participants might have answered our questions according to their wish. We noticed this tendency in patients with hypertension as well. Patients who knew they had high blood pressure said they preferred vegetable and dairy products in their meal. On the other hand, in patients with asymptomatic hypertension, this relationship was not found. Adults consume dairy products mainly as cheese, and cheese usually contains a high amount of salt. Recently some regulations to decrease the high salt content of food have gone into effect.

The response rate may be a limitation of the present study and another limitation is that we did not use a validated questionnaire related to eating habits in the study.

In conclusion, the rate of hypertension control is as high as 48.90% among patients with a history of hypertension. Patients who were aware of their situation answered the questions about nutritional habits as if they were on a diet, and this may have reflected their wishes or attempts. However, the reality is that one-third of the population has hypertensive disease or obesity, and the epidemic is continuing.

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