

MEDITERRANEAN DIET AND OVERACTIVE BLADDER

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Abstract

Aims The relationship between nutrition and overactive bladder (OAB) is known. This study investigates the relationship between Mediterranean type diet and OAB. **Methods** 14-Item Mediterranean Diet Adherence Screener (MeDAS) and OAB-V8 Bladder Inquiry Form, validated in Turkish, were presented to 500 patients over the age of 18 who applied to outpatient clinics other than urology outpatient clinics. Those with chronic diseases and urinary tract infections (by urinalysis and detailed medical history) were excluded. **Results** There was a negative correlation between the MeDAS and OAB-V8 scores. High OAB-V8 scoring was associated with obesity (BMI [?] 30), being single and low education level. **Conclusions** Dietary patterns represent a broader perspective of food and nutrient consumption and may therefore be more predictive of disease risk. Mediterranean type diet should be recommended in the first-line treatment of patients with OAB symptoms. It is easily possible to determine the compliance of patients with this diet by using 14-Item MeDAS. **Keywords:** Mediterranean Diet , Overactive bladder, Nutrition

mediterranean diet and overactive bladder

Running Title: Mediterranean diet and overactive bladder relationship

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ABSTRACT

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Methods

14-Item Mediterranean Diet Adherence Screener (MeDAS) and OAB-V8 Bladder Inquiry Form, validated in Turkish, were presented to 500 patients over the age of 18 who applied to outpatient clinics other than urology outpatient clinics. Those with chronic diseases and urinary tract infections (by urinalysis and detailed medical history) were excluded.

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There was a negative correlation between the MeDAS and OAB-V8 scores. High OAB-V8 scoring was associated with obesity (BKI [?] 30), being single and low education level.

Conclusions

Dietary patterns represent a broader perspective of food and nutrient consumption and may therefore be more predictive of disease risk. Mediterranean type diet should be recommended in the first-line treatment of patients with OAB symptoms. It is easily possible to determine the compliance of patients with this diet by using 14-Item MeDAS.

Keywords: Mediterranean Diet , Overactive bladder, Nutrition

What is already known about this topic? : The relationship between overactive bladder (OAB) and nutrients has been made by comparing individual foods, and there are limited studies. Mediterranean diet has been associated with quite different diseases and patient groups in the literature.

What does this article add? : Studies have shown that dietary patterns represent a broader perspective of food consumption and therefore dietary patterns are more predictive of disease risk. There is no study in the literature on overactive bladder and Mediterranean type diet. Mediterranean type diet is an accepted dietary pattern all over the world. We will contribute to the literature on OAB, which is common in our society and causes material and moral losses.

Introduction

Overactive bladder (OAB) syndrome is a symptomatological definition, in which urgency is the main complaint and usually accompanied by increased urination frequency and nocturnal urination and does not have any local pathological or metabolic reason to explain these symptoms.^{1,2} When the distribution of prevalence by gender is examined, this rate was reported as 20% for males and 35.7% for females in the most comprehensive population-based study conducted in Turkey. In the world literature, we see that these rates are between 6.5% -15.8% in men and 9.3-32.6% in women. OAB symptoms increase with age in both sexes and the cost will continue to increase as the average age of the population increases.³ The estimated total economic cost of OAB in the United States was 12.02 billion \$ in 2000 and OAB reduces the quality of life for millions of women.⁴

OAB has been associated with obesity, smoking, fluid intake, consumption of carbonated drinks and diet. The primary care in treatment is lifestyle and nutritional changes, and the priority is to improve the quality of life.^{5,6,11} The control of voiding is under the control of the sympathetic and parasympathetic nervous system. Considering that inflammation and endothelial damage may play a role in urological symptoms, it is reasonable that changes in dietary type have effects on OAB.^{7,8} There are different hypotheses about OAB pathophysiology. According to the Detrusor Overactivity Hypothesis, periferal afferent nerves become sensitized during bladder filling and urinary urgency request occurs without a change in detrusor pressure.⁹ Poor diet and lifestyle are recognized causes of type 2 diabetes and obesity with related metabolic dysfunction. In urodynamic studies, 55% of diabetic patients had OAB due to vascular and peripheral nerve damage.^{10,12}

In recent years, many studies have been conducted to examine the relationship between health and overall diet, and the effects of diet have been examined rather than focusing on individual foods. Dietary patterns represent a broader perspective of food and nutrient consumption and may therefore be more predictive of disease risk. The term "Mediterranean diet" refers to the association of more plant-based consumption

with improved survival. The main features of the Mediterranean diet include abundant vegetable food, olive oil as a source of fat consumption, grains, legumes, nuts with high amounts of pulp, low-medium consumption of fish and poultry, relatively low consumption of red meat and normally moderate wine with meals.¹³ Epidemiological studies revealed the protective effect of the Mediterranean diet against mild chronic inflammation and metabolic complications. The Mediterranean diet model is rich in foods with positive anti-inflammatory properties and poor in pro-inflammatory foods.^{14,15} We think that the Mediterranean diet may be associated with OAB.

Material and method

We included 500 patients who applied to outpatient clinics other than urology outpatient clinic in our study. 174 patients with heart failure, chronic renal failure, diabetes, chronic obstructive pulmonary disease, neurological diseases, general cognitive disorders, sleep disorders (eg sleep apnea), depression and urinary tract infection (with urine analysis and detailed medical history) excluded from our study. Turkish-validated OAB-V8 Bladder Inquiry Form and Turkish-validated 14-Item Mediterranean Diet Adherence Screener, used in patients.^{16,17} According to 14-Item Mediterranean Diet Adherence Screener (MeDAS), 1 or 0 points are taken for each question asked and the total score is calculated. A total score of 7 and above indicates that the individual has an acceptable level of compliance with the Mediterranean diet, and a score of 9 and above indicates that the individual has strict compliance with the Mediterranean diet.¹⁶ OAB-V8 Bladder Inquiry Form scores are aggregated to provide a global score ranging from 0 to 40. Scores from 0 to 8 are considered low, 8 to 16 as medium, and greater than 16 as high, which healthcare providers can take into consideration when making a diagnosis of OAB.^{17,18}

Statics

The numerical data of our study were not normally distributed according to the Kolmogorov Smirnov test. Kruskal Wallis test and Mann-Whitney U test were used to compare demographic data and questionnaire data. Spearman's correlation analyse test were used to evaluate relationships between various variables. Statistical analyses were carried out using the SPSS V27 (SPSS Inc). P value <0.05 was considered significant.

Results

500 people joined in our study, but but 326 people were included with exclusion criteria. Demographic data are shown in table 1. Gender (p = 0.008) and marital status (p = 0.047) of the patients were statistically significant in the MeDAS scoring. Women and married people were more compatible with the Mediterranean diet. Smoking (p = 0.127), education level (p = 0.074) and obesity (p = 0.758) are not statistically significant in the MeDAS scoring. In the OAB-V8 scoring, education level (p=0.001) marital status (p= 0.023) and obesity (BMI 30) (p= 0.049) are statistically significant, but gender (p = 0.478) and smoking (p = 0.464) are not statistically significant. High OAB-V8 scoring was associated with obesity (BMI [?] 30), being single and low education level (Table 2).

MeDAS scores (Figure 1) and OAB-V8 (Figure 2) scores were statistically negatively correlated (p <0.001) (r = 0.359). OAB-V8 scores and Body Mass Index (BMI) calculations showed a statistically positive correlation (p = 0.002)(r = 0.175). Age and BMI were statistically positively correlated (p <0.001)(r = 0.382). Descriptive numeric data of the age, BMI, MeDAS scoring and OAB-8 scoring are shown in Table 3.

Discussion

OAB is primarily an exclusion diagnosis and symptom complex. Treatments are aimed at alleviating symptoms and cannot reverse pathophysiological abnormalities. Understanding the pathophysiology and risk factors for developing OAB is essential for both treating and preventing the syndrome. Studies evaluating how OAB develops and its natural history and progression are needed. The timing and circumstances around which OAB develops and associated risk factors are not yet well-understood.^{19,20}

There is no study examining the relationship between OAB and Mediterranean type diet in the literature. However, there is increasing evidence that diet may have a significant role in the development of OAB

symptoms. Dalloso et al. collected data from 7046 women over the age of 40 to investigate the role of diet and lifestyle on OAB and urinary incontinence. To determine the onset of OAB symptoms, diet and lifestyle models were questioned via postal questionnaire. There was a significant relationship between OAB symptoms and obesity, smoking and carbonated drinks consumption. The risk of OAB symptoms was reduced with higher consumption of vegetables, bread and chicken.²¹ In our study all adults participated, regardless of gender. 174 patients were excluded from the study by taking a detailed medical history in outpatient clinics and performing urine analysis. Chronic diseases and urinary tract infections, which are exclusion criteria, could mislead the results in the diagnosis of OAB syndrome. Obesity has similarly been associated with OAB. Dalloso et al. He evaluated foods in groups with the results he obtained. In our study, the cumulative effect of foods was highlighted by evaluating the Mediterranean type diet questionnaire (MeDAS).

Chris C Sexton et al. was found that education level and OAB symptoms were statistically compatible.²² Similar results were obtained from the data in our study.

A further large population based study in 2060 women has been reported based on the Boston Area Community Health Survey (2002-2005). Although there is no relationship of carbohydrate, protein, or fat intake with OAB, the ratio of saturated fat to polyunsaturated fat has been positively correlated with incontinence was related. Another analysis in this cohort of patients showed that increased saturated fat was associated with post-void symptoms, and high protein intake was associated with OAB symptoms. However, there was no consistent relationship with carbohydrate and monounsaturated / polyunsaturated fat intakes.⁸ Obesity has been associated with OAB similar to our study. Mediterranean diet is a type of diet that is poor in saturated fat. For this reason, it made us think that the data obtained were compatible with our study. However, dietary patterns represent a broader perspective of food and nutrient consumption and may therefore be more predictive of disease risk. Considering the outpatient clinic conditions, we think that the Mediterranean type diet model should be recommended for the first step treatment of OAB symptoms. A short information form will raise awareness of patients about the Mediterranean diet.

Conclusion

Mediterranean type diet should be recommended in the first-line treatment of patients with OAB symptoms. It is easily possible to determine the compliance of patients with this diet by using 14-Item MeDAS.

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Figure Legends

Figure 1: A histogram showing the frequencies of the MeDAS scoring

Figure 2: A histogram showing the frequencies of the OAB-V8 scoring

Table 1

Frequency and Percent for Study Variables

	Frequency	Percent
Gender		
Female	232	71.2
Male	93	28.5
Age		
20-29	97	29.8
30-39	95	29.1
40-49	98	30.1
50-60	19	5.8
Marital status		
Married	211	64.7

	Frequency	Percent
Single	115	35.3
Education level		
Primary school	18	5.5
Middle School	5	1.5
High school	55	16.9
University	176	54.0
Postgraduate	71	21.8
Smoking		
No	226	69.3
Yes	100	30.7
Obesity		
BMI ≥ 30	48	14.7
BMI < 30	277	85.0

Table 2

Means and Standard Deviations for Study Variables

Study Variables	N	MeDAS		OAB-V8	
		M	SD	M	SD
Gender					
Female	232	6.89	1.847	6.24	4.667
Male	92	6.17	1.948	6.30	4.13
Marital status					
Married	210	6.42	2.065	5.95	4.342
Single	115	6.84	1.788	6.42	4.599
Education level					
Primary school	18	5.89	2.220	8.83	5.742
Middle School	4	6.50	1.732	3.75	4.349
High school	55	6.44	2.016	7.05	5.352
University	176	6.68	1.767	6.55	4.300
Postgraduate	71	7.15	1.969	4.64	3.220
Smoking					
No	225	6.83	1.852	6.06	4.225
Yes	100	6.38	1.973	6.68	5.087
Obesity					
BMI ≥ 30	47	6.60	1.861	7.66	5.478
BMI < 30	277	6.70	1.906	6.02	4.296

Table 3

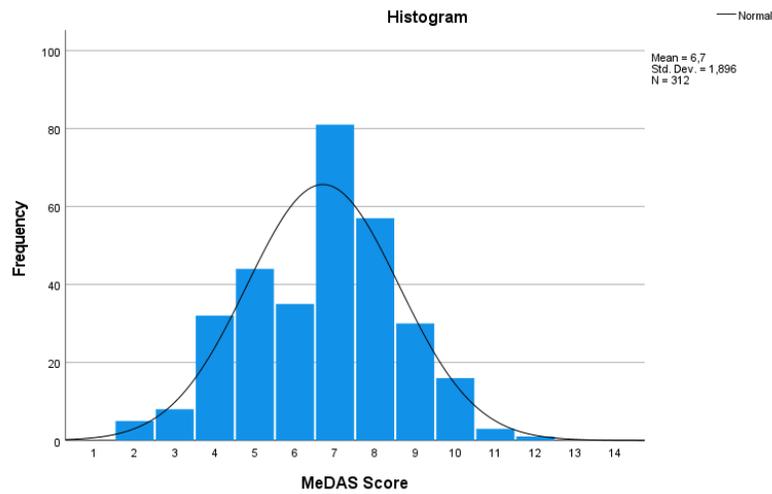
Descriptive data and Correlations for Study Variables

	N	M	SD	1	2	3	4
1.MeDAS	326	6.69	1.898				
Correlation					-0.359**	0.101	-0.042

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
<i>Sig.</i> (2-tailed)				.	<0.001	0.074	0.452
2.OAB-V8	326	6.25	4.509				
<i>Correlation</i>				-0.359**		0.057	0.175**
<i>Sig.</i> (2-tailed)				<0.001	.	0.312	0.002
3.Age	313	35.37	8.775				
<i>Correlation</i>				0.101	0.057		0.382**
<i>Sig.</i> (2-tailed)				0.074	0.312	.	<0.001
4.BMI	325	25.2534	4.46352				
<i>Correlation</i>				-0.042	0.175**	0.382**	
<i>Sig.</i> (2-tailed)				0.452	0.002	<0.001	.

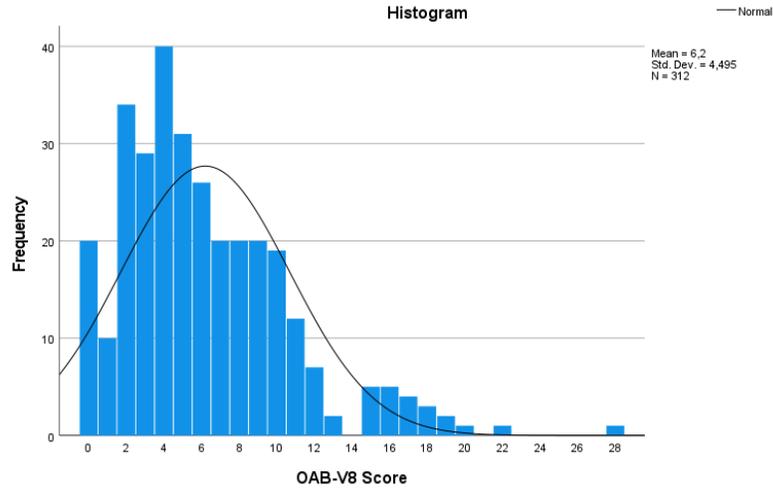
** Correlation is significant at the <0.01 level (2-tailed).

Figure 1



A histogram showing the frequencies of the MeDAS scoring

Figure 2



A histogram showing the frequencies of the OAB-V8 scoring

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