

Evaluation of Social Reflex Resulting from Observation of Blood in the Urine

İdrarda Kan Görülmesi ile Oluşan Toplumsal Refleksin Değerlendirilmesi

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What's known on the subject? and What does the study add?

The way to reduce health expenditures is to educate the society. It is evident that this education is still needed today.

Abstract

Objective: In this study, we aimed to evaluate the level of public awareness of hematuria.

Materials and Methods: In September 2017, a survey of randomly selected 400 patients who presented to our outpatient clinic in a period of 1 month was conducted. The survey focused on patients' background and knowledge of urology and hematuria.

Results: A hundred and sixteen (29%) females and 284 (71%) male patients participated in our survey. Two hundred and seven (51.7%) patients were under age 50 and 193 (48.3%) were over 50 years of age. 155 (38.8%) patients were primary school graduates, 59 (14.8%) - secondary school, 98 (24.5%) - high school, and 88 (22%) were university graduates. Three hundred and thirty-two (83%) patients described that they have previously seen blood in their urine and, 68 (17%) patients did not. There was no statistically significant difference in patients who went immediately to the urology outpatient clinic in the case of hematuria, but those who thought that they may have tumor were older in age. No significant difference was observed in the answers to the questionnaires between gender and between hematuria experience. Those who immediately went to the urology clinic in the presence of hematuria were in the smoking group.

Conclusion: Public awareness of health is of utmost importance. However, it was seen that even patients who may be at risk for malignant diseases were not able to lead the way in public awareness.

Keywords: Social awareness, Hematuria, Urology

Öz

Amaç: Bu çalışmada, hematürinin önemi konusunda sosyal farkındalık düzeyini değerlendirmeyi amaçladık.

Gereç ve Yöntem: Eylül 2017'de, bir ay içinde poliklinik başvurusunda bulunan rastgele seçilmiş 400 hasta üzerinde yapılan bir anket gerçekleştirildi. Ankette hastaların üroloji ve hematüri geçmişleri ile bilgi düzeyleri üzerinde duruldu.

Bulgular: Anketimize 116 (%29) kadın ve 284 (%71) erkek hasta katıldı. Bu hastaların 207'si (%51,7) 50 yaşın altında ve 193'ü (%48,3) 50 yaşın üzerindedir. Hastaların 155'i (%38,8) ilköğretim mezunu, 59'u (%14,8) ortaokul, 98'i (%24,5) lise ve 88'i de (%22) üniversite mezunuydu. Üç yüz otuz iki (%83) hasta idrarda daha önce kan görmüş olduklarını açıkladı; 68 (%17) hasta daha önce kan görmedi. Hematüri olgularında hemen üroloji polikliniklerine başvuran hastalar arasında istatistiksel olarak anlamlı bir fark bulunmadı, bununla beraber tümör olabileceğini düşünenlerin yaş ortalamaları daha yüksekti. Cinsiyet ve hematüri deneyimi bakımından anketlere verilen yanıtlarda anlamlı farklılık izlenmedi. Hematüri varlığında hemen üroloji kliniğine başvuranların sigara içenler grubunda olduğu görülmüştür.

Sonuç: Sağlık ile ilgili toplumsal farkındalık son derece önemlidir. Bununla birlikte, bu çalışmada ürolojik malign hastalık riski altında olabilecek hastaların bile toplumsal farkındalık konusunda öncülük edemediği görülmüştür.

Anahtar Kelimeler: Toplumsal farkındalık, Hematüri, Üroloji

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Introduction

Hematuria is a clinical finding that can originate from anywhere in the urinary tract and can be the first sign of many diseases, including malignant diseases, of which prevalence may range from 4% to 19.3% (1,2). In clinical practice, hematuria comes out in two ways. Macroscopic hematuria, defined as blood in the urine that can be visible by the patient, allowing the patient to seek medical care in a faster manner and microscopic hematuria defined as more than 3 red blood cells at 2 out of 3 urine analyzes at 2-3 week intervals as indicated in the American Urological Association (AUA) guidelines (2,3).

It should not be forgotten that the urine sample should be fresh, properly taken, and the mid-stream urine for the detection of hematuria. The detection and grade of hematuria can be quantitatively determined by counting red blood cells per 1 mL of urine (chamber count), or by direct examination of the sediment of the centrifuged urine (sediment count) or indirectly by dipstick (4). Dipstick test is the simplest test for the detection of hematuria and is considered a color change due to oxidation on the test strip. However, the presence of erythrocytes is not definitive and the result of the dipstick test must be confirmed by microscopy before starting further studies (4,5). It is necessary to exclude cases where the urine color is red, which is called pseudohematuria, and without erythrocyte.

Macroscopic hematuria usually signifies an important underlying pathology. At least half of the macroscopic hematuria patients have an important urogenital system disease (5,6). For this reason, there is no debate about the need for further evaluation to determine the underlying cause of macroscopic hematuria (4).

Clinical significance is particularly variable in microscopic hematuria, therefore, it is recommended to use risk factors to evaluate patients and to ignore clinically insignificant hematuria. In a study conducted in a group of patients with microscopic hematuria among the general population, the incidence of urological or nephrological disease was 13-50% and the prevalence of cancer diagnosis was 1-2% (7). The AUA guidelines suggest evaluation of patients with asymptomatic microscopic hematuria if there is a risk of having urological or nephrological disease (4). On the other hand, the British guidelines recommend urgent referral to an urologist in the presence of microscopic hematuria in an age over 50 years and non-urgent under the age of 50 years (8).

Materials and Methods

In September 2017, a survey of randomly selected 400 patients; about one-third of the patients who applied to our clinic in a month, with any complaint were conducted in the urology

outpatient clinic at Bülent Ecevit University Hospital. After approval of the Bülent Ecevit University Ethics Committee (approval number: 2017-84-09/08), a questionnaire was administered to all patients who participated in the study and provided written informed consent.

The survey focuses on patients' background and knowledge of urology and hematuria. The exclusion criteria of this study were being illiterate and refusing to participate.

The patients were divided into various groups according to their age, level of education, smoking habit and hematuria experience (Table 1).

Statistical Analysis

Statistical analysis were performed with SPSS 19.0 software (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics were calculated in terms of frequency and percent distribution. The chi-square test or Fisher's exact test was used to determine differences between the groups. A p value of less than 0.05 was considered statistically significant.

Results

A hundred and sixteen (29%) female and 284 (71%) male patients participated in our survey. Two hundred and seven (51.7%) patients were under the age of 50 and 193 (48.3%) were over the age of 50. One hundred fifty-five (38.8%) patients were primary school graduates, 59 (14.8%) - secondary school, 98 (24.5%) - high school, and 88 (22%) participants were university graduates. Three hundred and thirty-two (83%) patients described that they have previously seen blood in their urine and 68 (17%) patients did not. The demographic characteristics of the patients as well as the answers given to the questionnaire are shown in Table 2.

When we separated the patients into two groups according to their age, it was seen that who had full opinion on urology were younger in age. There was no statistically significant difference in age between patients who went immediately to the urology outpatient clinic in case of hematuria, but those who thought that they had tumors were older in age (Table 3).

When we divided the patients into two groups according to their gender, it was seen that the majority of patients were male in older age. No significant difference was observed in the answers to the questions in terms of gender (Table 4).

When we separated the patients into two groups according to their smoking habit, the majority of smokers appeared to be males of younger age group. It was seen that those, who immediately went to the urology clinic in the presence of hematuria, were in the smoking group (Table 5).

Table 1. Questionnaire form

Survey questions						
Your age						
20-30	30-40	40-50	50-60	60-70	70-80	80-90
Gender						
Female				Male		
Educational status						
Primary school		Secondary school		High school		University
Do you smoke?						
Yes				No		
Urology deals with diseases of certain organs?						
Kidney		Bladder	Prostate		All	No idea
Have you seen blood in your urine?						
Yes				No		
What do you do if you see blood in your urine?						
Go to emergency service						
Go to the urologist						
Go to general surgery						
Go to family doctor						
Go to doctor if once again						
What would you think first if you have micro hematuria?						
No idea	Urinary tract infection	Sand in the urine		Tumor	Fatigue	Cold
What is used to diagnose microhematuria?						
Cystoscopy	CT	MRI	Urinalysis	USG	No idea	

CT: Computed tomography, MRI: Magnetic resonance imaging, USG: Ultrasonography

When we divided the patients into two groups according to their hematuria experience, the majority of patients were found to be in the older age group. There was no statistically significant difference in the answers given to the questions between the two groups (Table 6).

Discussion

Urology is a medical science dealing with human urinary and male reproductive system. Every year a significant number of patients are presenting to the urology clinics. Early diagnosis means catching diseases in their earlier stages and enabling earlier treatment. The importance of preventive health care is understood when the economic burden of health expenditures in the country is considered. It was estimated that the amount to be spent for cancer patients in the USA in 2010 was about 126 billion dollars. The size of the economic burden will be better understood when the other benign causes are considered as well (9). It is recommended to perform annual urine examination and prostate-specific antigen measurement and simple blood

tests especially for patients over 50 years of age (10,11).

In case of macroscopic hematuria, patients will immediately seek medical help, but the identification of microscopic hematuria and the patients' care on its importance need some degree of awareness. There are various factors contributing to the etiology of hematuria. Although malignant causes may be considered as the most frightening one, early detection of stone in the urinary system and benign kidney diseases and diseases of lower urinary tract that may require close follow-up are also important for early diagnosis and reduction of treatment costs.

Although there is little debate about immediate further examination when the hematuria is visible, there is still no consensus on the right approach towards microscopic hematuria (12,13).

There are studies showing different outcomes of bladder cancer seen in young patients compared to bladder cancer detected over 40 years of age (14,15,16,17). In a study by Parkin (18), bladder cancer has been shown to be lower in grade and stage

Table 2. The answers given to the questionnaire

Gender					
Female 116 (29%)			Male 284 (71%)		
Age					
50>207 (51.7%)			50≤193 (48.3%)		
Educational status					
Primary school 155 (38.8%)		Secondary school 59 (14.8%)		High school 98 (24.5%)	University 88 (22%)
Smoking habit					
Yes 117 (29.25%)			No 283 (70.75%)		
Urology deals with diseases of certain organs?					
All 239 (59.8%)		Prostate 60 (15%)	Kidney 47 (11.8%)	No idea 33 (8.3%)	Bladder 21 (5.3%)
Blood in your urine					
Yes 68 (17%)			No 332 (83%)		
What do you do if you see blood in your urine?					
Urologist 261 (65.3%)		Emergency department 86 (21.5%)		If once again 41 (10.3%)	Family doctor 6 (1.5%)
General surgery 6 (1.5%)					
What would you think first if you have micro hematuria?					
No idea 146 (36.5%)		Urinary tract infection 128 (32%)	Sand in the urine 76 (19%)	Tumor 25 (6.3%)	Cold 19 (4.8%)
Fatigue 6 (1.5%)					
What is used to diagnose microhematuria?					
Urinalysis 211 (52.8%)		USG 23 (5.8%)	MRI 12 (3%)	CT 10 (2.5%)	Cystoscopy 21 (5.3%)
Urinalysis + USG 52 (13%)		Urinalysis + CT 10 (2.5%)		Urinalysis + cystoscopy 9 (2.3%)	
Urinalysis + cystoscopy + USG + MRI + CT 4 (1%)					

CT: Computed tomography, MRI: Magnetic resonance imaging, USG: Ultrasonography

Table 3. The relation of answers with patient's age

		Age		p
		Under 50 years	Over 50	
Gender	Male	126 (60.9%)	158 (81.9%)	<0.001
	Female	81 (39.1%)	35 (18.1%)	
Smoking habit	No	130 (62.8%)	153 (79.3%)	<0.001
	Yes	77 (37.2%)	40 (20.7%)	
Educational status	University	68 (32.9%)	20 (10.4%)	<0.001
	Other	139 (67.1%)	173 (89.6%)	
Going to urology immediately	No	72 (34.8%)	67 (34.7%)	0.989
	Yes	135 (65.2%)	126 (65.3%)	
Tumor thinking	No	201 (97.1%)	174 (90.2%)	0.008
	Yes	6 (2.9%)	19 (9.8%)	
Having full idea about urology	No	57 (27.5%)	104 (53.9%)	<0.001
	Yes	150 (72.5%)	89 (46.1%)	
Urinalysis	No	94 (45.4%)	96 (49.7%)	0.386
	Yes	113 (54.6%)	97 (50.3%)	

p<0.05 statistically significant

Table 4. The relation of answers with patient's gender

		Gender		p
		Male	Female	
Age	<50	126 (44.4%)	81 (69.8%)	<0.001
	≥50	158 (55.6%)	35 (30.2%)	
Smoking habit	No	189 (66.5%)	94 (81.0%)	0.004
	Yes	95 (33.5%)	22 (19.0%)	
Hematuria experience	No	233 (82.0%)	99 (85.3%)	0.515
	Yes	51 (18.0%)	17 (14.7%)	
Educational status	University	58 (20.4%)	30 (25.9%)	0.233
	Other	226 (79.6%)	86 (74.1%)	
Going to urology immediately	No	95 (33.5%)	44 (37.9%)	0.393
	Yes	189 (66.5%)	72 (62.1%)	
Tumor thinking	No	266 (93.7%)	109 (94.0%)	1.000
	Yes	18 (6.3%)	7 (6.0%)	
Having full idea about urology	No	115 (40.5%)	46 (39.7%)	0.877
	Yes	169 (59.5%)	70 (60.3%)	
Urinalysis	No	136 (47.9%)	54 (46.6%)	0.808
	Yes	148 (52.1%)	62 (53.4%)	

p<0.05 statistically significant

Table 5. The relation of answers with patient's smoking habit

		Smoking habit		p
		No	Yes	
Age	<50	130 (45.9%)	77 (65.8%)	<0.001
	≥50	153 (54.1%)	40 (34.2%)	
Gender	Male	189 (66.8%)	95 (81.2%)	0.004
	Female	94 (33.2%)	22 (18.8%)	
Educational status	University	67 (23.7%)	21 (17.9%)	0.209
	Other	216 (76.3%)	96 (82.1%)	
Blood in urine	No	241 (85.2%)	91 (77.8%)	0.101
	Yes	42 (14.8%)	26 (22.2%)	
Going to urology immediately	No	107 (37.8%)	32 (27.4%)	0.046
	Yes	176 (62.2%)	85 (72.6%)	
Tumor thinking	No	262 (92.6%)	113 (96.6%)	0.202
	Yes	21 (7.4%)	4 (3.4%)	
Having full idea about urology	No	117 (41.3%)	44 (37.6%)	0.488
	Yes	166 (58.7%)	73 (62.4%)	
Urinalysis	No	131 (46.3%)	59 (50.4%)	0.451
	Yes	152 (53.7%)	58 (49.6%)	

p<0.05 statistically significant

Table 6. The relation of answers with patient's hematuria experience

		Hematuria experience		p
		No	Yes	
Age	<50	181 (54.5%)	26 (38.2%)	0.014
	≥50	151 (45.5%)	42 (61.8%)	
Gender	Male	233 (70.2%)	51 (75.0%)	0.515
	Female	99 (29.8%)	17 (25.0%)	
Educational status	University	78 (23.5%)	10 (14.7%)	0.152
	Other	254 (76.5%)	58 (85.3%)	
Going to urology immediately	No	116 (34.9%)	23 (33.8%)	0.971
	Yes	216 (65.1%)	45 (66.2%)	
Tumor thinking	No	311 (93.7%)	64 (94.1%)	1.000
	Yes	21 (6.3%)	4 (5.9%)	
Having full idea about urology	No	138 (41.6%)	23 (33.8%)	0.236
	Yes	194 (58.4%)	45 (66.2%)	
Urinalysis	No	157 (47.3%)	33 (48.5%)	0.852
	Yes	175 (52.7%)	35 (51.5%)	

p<0.05 statistically significant

Table 7. The relation of answers with patient's educational status

		Educational status		p
		Other	University	
Age	<50	139 (44.6%)	68 (77.3%)	<0.001
	≥50	173 (55.4%)	20 (22.7%)	
Gender	Male	226 (72.4%)	58 (65.9%)	0.233
	Female	86 (27.6%)	30 (34.1%)	
Smoking habit	No	216 (69.2%)	67 (76.1%)	0.209
	Yes	96 (30.8%)	21 (23.9%)	
Going to urology immediately	No	103 (33.0%)	36 (40.9%)	0.169
	Yes	209 (67.0%)	52 (59.1%)	
Tumor thinking	No	296 (94.9%)	79 (89.8%)	0.135
	Yes	16 (5.1%)	9 (10.2%)	
Having full idea about urology	No	146 (46.8%)	15 (17.0%)	<0.001
	Yes	166 (53.2%)	73 (83.0%)	
Urinalysis	No	148 (47.4%)	42 (47.7%)	0.961
	Yes	164 (52.6%)	46 (52.3%)	

p<0.05 statistically significant

in younger patients. A study conducted by Millan Rodriguez et al. (19) found that bladder cancer behaviors were similar in young and older group of patients. In our study, there was no significant difference in age between those who presented to the urology clinic immediately in case of hematuria. It was observed that those who had sufficient information about urology were in younger age group but those who considered tumors in the presence of hematuria were older in age.

In their study, Messing et al. (20) have shown that among screened males, less cases of invasive cancer were detected than in non-screened males (4.8-23.5%). The mortality rate of bladder cancer was lower in these patients and none of the screen-detected bladder cancer patients died of the disease (20). In our study, because 65.3% of patients consulted urologist in case of hematuria and 21.5% of patients presented to emergency department seems to be enough for consciousness

of being in quest of medical assistance. However, the fact that approximately 13.3% of patients do not feel the same excitement for seeking treatment may show that there is still a need for awareness.

A significant difference was found only in the level of knowledge about urology in comparison with the level of education (Table 7). This reveals the necessity of raising awareness of hematuria in every part of the society. 36.5% of patients had no idea of the causes of hematuria, only 6.3% of patients thought that it could be a tumor. About half of the patients thought that only urinalysis was sufficient for the diagnosis of microhematuria.

Similar to a study by Değer et al. (21), our study also showed the need for public awareness of hematuria.

Education or public health campaigns; which one? Hughes-Hallett et al. (22) have shown that the effectiveness of public health campaigns was temporary on the society and generally increased hospital admission rates, but not cancer diagnosis rates. If so, it would be wise to concentrate more on educating people to raise awareness, rather than making high-budget campaigns to reduce health spending.

Study Limitations

It can be assumed that questioning of patients in the outpatient conditions may reduce the transparency of the questionnaire, since some patients coming for examination purposes were already guided by a healthcare professional. While the patients were responding to the survey questions, it was another restriction that they were not alone. Up to 17% of outpatient admissions were in patients having previous experience of hematuria that may affect survey responses. However, the fact that seeing no statistically significant difference between people with and without history of hematuria, forms the purpose of our study.

Conclusion

Public awareness of health is of utmost importance. The importance of social education in the formation of this consciousness is already known. In our study, we focused especially on parameters such as education level, age, smoking habit, and gender. However, it was seen that even patients who were at risk for malignant diseases were not able to lead the way in public awareness.

Ethics

Ethics Committee Approval: This study was approved by the Bülent Ecevit University Ethics Committee (approval number: 2017-84-09/08).

Informed Consent: Consent form was filled out by all participants.

Peer-review: Externally peer-reviewed.

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