

Investigation of the frequency of testicular self examination performance in young adult males

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SUMMARY

Testicular tumors are the second most frequently observed malignancy after leukemia in the age group of 20-35 in men. The rate of a 5-year survey is 99.9% with early diagnosis. Awareness of the individuals and performing a testicular self examination by themselves are important in the early diagnosis. Our aim in this cross-sectional study was to determine the performance frequency of testicular self examination and the factors affecting this among young adults. Of all the participants, 23.3%, 6.8% and 4.7% declared that they had heard about testicular cancer and about testicular self examination, and that they had performed testicular self examination at least once in their life, respectively. The rates of hearing about and performing testicular self examination were found low in the present study, however these rates were higher among those who had heard of testicular cancer from population. Well planned campaigns and educational organizations may be conducted in the country-wide in order to increase the awareness about testicular cancer and the frequency of testicular self examination.

Key words: *Soldier, testicular cancer, testicular self-examination, young adult man*

ÖZET

Genç erişkin erkeklerde kendi kendine testis muayenesi yapma sıklığının araştırılması

Testis tümörleri 20-35 yaş grubu erkeklerde lösemiden sonra en sık rastlanan 2. malignitedir. Erken tanı ile 5 yıllık yaşam oranı %99.9'dur. Bireylerin farkındalığı ve kendi kendilerine testis muayenesi yapmaları erken tanı için önemlidir. Bu kesitsel çalışmadaki amacımız, genç erişkin erkeklerde kendi kendisine testis muayenesi uygulama düzeyi ve buna etki eden faktörleri saptamaktır. Katılımcıların %23.3'ü testis kanserini duyduklarını, %6.8'i kendi kendisine testis muayenesini duyduklarını, %4.7'si hayatları boyunca en az bir kez kendi kendisine testis muayenesi yaptıklarını belirtmişlerdir. Çalışmamızın yapıldığı popülasyonda kendi kendisine testis muayenesini duyma sıklığı ve kendi kendisine testis muayenesi yapma durumları düşük bulunmuştur, ancak bu oranlar testis kanserini popülasyondan duyanlarda daha yüksek olarak bulunmuştur. Testis kanserinin farkındalığının ve kendi kendisine testis muayenesinin sıklığının artırılması için ülke genelinde iyi planlanmış kampanyalar ve eğitim organizasyonları düzenlenebilir.

Anahtar kelimeler: *Asker, testis kanseri, kendi kendine testis muayenesi, genç erişkin erkek*

Introduction

Testicular cancer is one of the health problems, frequency of which continuously increases. Testicular tumors are the second most frequent malignancy after leukemia in males at the age group of 20-35 (1). The incidence of testicular cancer shows variations between countries, races and socio-economic classes. The rate is 6.7% and 0.8 in Scandinavian countries and Japan, respectively. In the USA 2-3 new cases are reported per 100.000 males per year (2). The risk of a development of testicular cancer in white males in the USA during the whole life is at a level of 0.2%. The incidence in people of higher socio-economic classes is half of the lower socio-economic classes (2).

Although the reason for testicular cancer is not known exactly, there is knowledge regarding that both congenital as well as some acquired factors are responsible in tumor development. The strongest relationship is with an "undescended testis". Approximately 7-10% of testicular cancers develop with cryptorchidism history. The cryptorchidism prevalence is 9.2-30.0% in premature births and 3.5-5.8% in mature births. Cryptorchidism frequency is 0.8-1.0% during the first age and remains unchanged with a ratio of 0.7% until puberty (3). Five to 10% of testicular tumors occur on the opposite side, in the normal descended testis. The highest relative malignancy risk (1 of 20) is met in intra-abdominal testis. Placement of the cryptorchid testis into the scrotum (orchidopexy) reduces the malignancy potential of the cryptorchid testis (2). The frequency of testicular cancer cases met on the right side is 52.3%, on the left side 47.7%, and the frequency of being bilateral is 2-3% (4).

In general the patients consult the physician due to a painless single side bulge and mass in the scrotum. The growth of the testis in general develops slowly and a feeling of testicular pain is experienced. The common accepted opinion is that until the opposite

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is approved, a determined asperity in the testis needs to be deemed as a malign tumor (3). Other symptoms are gynecomasty, pigmentation on the scrotum, and pain in the abdomen and the groin. Scrotal pain develops at the late period of the tumor as a result of tunica albuginea or epididymis invasion (4).

The time between the first discovery of the lesion in the testis and start of the definite treatment (orchidectomy) is 3-6 months in average. The time of the delay shows a correlation with the incidence of the metastasis. Approximately 10% of the patients are asymptomatic and can be detected upon trauma or by the sexual partner of the patient (3).

Testis tumor often mimics epididymitis and epididymorchiditis. Ten per cent of testis tumors mimics orchiepididymitis. Their diagnosis can easily be made with ultrasound and anamnesis. Other diseases to be considered during the diagnosis are spermatocele, traumatic hematocele, granulomatous orchitis, varicocele and epidermoid cysts (3).

Testicular cancer can be treated completely when they are detected in early stages. The chance for a 5-year life is 99.9% with early diagnosis (5). Among the basic diagnostic methods, ultrasound, transillumination and computed tomography can be mentioned (1,3). Individuals' awareness and their performing a testicular self examination (TSE) by themselves is important regarding an early diagnosis (3).

Routine testicular self examination (R-TSE) is an examination performed by the person himself at least once a month and regularly, which is made by using both hands, while holding the testis with one hand and examining the testis on masses during bathing or after bathing in front of a mirror (1,6). Along with the advantages that R-TSE is easy to learn and to apply, safe, non-invasive, economic, and does not need any special tools and devices, take time. When it is performed regularly each month, it provides that changes are detected early because the testis structure is known.

There are some studies examining testicular cancer and TSE performance frequencies. In these studies, TSE performance frequency varies according to the attributes of the group with which the study is realized. The frequencies of hearing about testicular cancer and TSE and performance of TSE in these studies are summarized in Table I.

In the study performed by Ercan et. al. among 867 male university students between the ages of 18-30 years, it is determined that 8.9% of the participants have heard about TSE, and 5.1% perform TSE (6). In the study performed by Lechner et. al. among 274 students between the ages of 15-19 years, it is determi-

ned that 3.0% of the participants have heard about TSE and 2.0% performed TSE (5). The TSE performance frequency of the participants of the study realized by Khadra et. al. among 202 persons of the ages of 18-50 years who consulted a polyclinic providing first stage health services is determined as 22.0% (7). In the study performed by Moore et. al. among 203 people who are university students or graduates between the ages of 20-45 years, it is determined that 32.0% of the participants have heard about TSE and 22.0% performed TSE (8). In the study by Rudberg et. al. performed among university students in Sweden, it is determined that many of the students have not heard anything about TSE (9). In the study of Tichler et. al. among 717 soldiers and 200 military physicians in the Israeli army, 2.0% of the soldiers and 73% of the physicians have stated that they have performed TSE (10). In the study of Vaz et. al. among 1364 adolescent males, 28.0% of the participants stated that they had heard about testicular cancer (11). In this study of Wardle et. al. among 7304 young male adults, it is stated that 13.0% of the participants have performed TSE (12). In the study by Neef et. al. among 404 male college students, it is stated that 42.0% of the participants heard about TSE, 22% performed TSE before (13). In the study by Cummings et. al. among 266 university students and male graduates, it is determined that 16.0% of the participants have heard about TSE (14). In the study of Christine et. al. among 191 young adult males between the ages of 18-35 years, it is stated that 36.0% of the participants have performed TSE (15).

It is rather important that the male become more aware on testicular cancer, of which the frequency of incurrence has raised during the last years, they learn and apply TSE as an early diagnostic method. The aim of this study was to determine the testicular self examination performance frequency in young adult males.

Material and Methods

The universe of this study, planned in cross section type, was constituted by 5033 persons, who joined the Etimesgut Armoured Units Education Center Commandership in the recruitment period in November 2007. There is no sample selection made for the study, it is targeted to reach the whole universe in a term of one week upon the start of the arrival of the soldiers to the unit. As some soldiers joined the unit except for working hours and that some rejected to participate in the study, not the whole of the universe could be reached, the study was performed with 3645 (72.4%) persons.

The data were collected by the researchers using the question form, developed by the researchers after a li-

Table I. Brief findings of studies regarding the performance of a testicular self examination

<i>Researchers</i>	<i>Research type</i>	<i>Age group</i>	<i>Group attribute (n)</i>	<i>Hearing of testicular cancer</i>	<i>Hearing of TSE</i>	<i>At least one performance of TSE in life</i>	<i>At least once a month performance of TSE</i>	<i>Country</i>
Ercan et. al. (6)	Cross sectional	18-30	University students (867)	42.9%	8.9%	5.1%		Turkey
Lechner et. al. (5)	Descriptive	15-19	High-school students (274)	26.0%	3.0%	2.0%		Holland
Khadra et. al. (7)	Descriptive	18-50	People consulting polyclinic providing a first stage health services (202)	91.0%	28%	22%		England
Moore et. al. (8)	Descriptive	20-45	University students and graduates (203)	90.6%	32.0%	22.0%	5.06%	England
Rudberg et. al. (9)	Cross sectional	15-21	High-school students (727)	11.3%	5.6%	11.5%	1.2%	Sweden
Tichler et. al. (10)	Descriptive		Male soldiers (717) Military physicians (200)			2% 73%		Israel
Vaz et. al. (11)	Descriptive	Adolescent	(1364)	28%				USA
Wardle et. al. (12)	Cross sectional	Young adult male	16486 students			13%		England
Neef et. al. (13)	Descriptive		College students (404)		42%	22%	8%	USA
Cummings et. al. (14)	Descriptive		University students and graduates (266)		16%			USA
Christine et. al. (15)	Descriptive	18-35	People living in industry complex (191)			36%		USA

temperature hatch. On the question form, there are 7 questions regarding their socio-demographic attributes, 3 questions regarding the stories of the participants regarding cancer and testicular cancer, 10 questions regarding testicular self examination in order to determine their behavior and 15 questions regarding testicular cancer, symptoms and TSE were included into the knowledge test. The pre-test of the question form, prepared by the researchers was made with 20 soldiers of the Gulhane Military Medical Academy. Support Troops Command, failures regarding the application and easiness to understand and observed failures regarding data entrance are amended. It was approved by the ethic commission.

Groups of 20 persons of the soldiers who joined the Etimesgut Armoured Units Education Center Commandership in November 2007 were interviewed, the study and its aim were explained, if they should want to participate (those who orally accepted to) necessary information regarding some definitions in the inquiry (testis, undescended testis, testicular self examination) is provided orally such that

the participants can understand these and provided that they answer the questions under observation.

The recruitment age in Turkey is 20 and those, who are not hindered join the Armed Forces in general at the age of 21 years. But only at a little part the recruitment age is later due to several reasons. Thus, in general male perform their military services at the age of 20-21. For that, the ages are grouped as 20-21, 22-24, 25 years and above. The occupational information of the participants is obtained as open end and afterwards a grouping regarding being or not-being related to healthcare is performed. The demographic distribution of the participants is grouped by the regionalization system of five of the Turkish Statistic Institute by respecting their provinces of birth.

The data were analyzed by using the SPSS 10.0 package statistic software. The descriptive statistics were given as frequencies and percent. The TSE performance frequencies and completeness of some socio-demographic with descriptive attributes, the completeness of giving correct answers to each question of the knowledge test with the TSE performance fre-

quency, of which it was thought that they may have an effect on this, was compared with the chi-square, and the comparison of the average of the participants giving correct answers at the knowledge test according to their socio-demographic and descriptive attributes was compared with the Kruskal-Wallis and the Mann-Whitney U test. A p value of <0.05 was accepted statistically significant.

Results

The age of the participants was between 20 and 44 years. The average age was 20.6 ± 1.4 and 85.6% was in the age group of 20–21 years. When the location of birth was respected, 35.8% were born in province centers, 24.6% in districts, 93.4% of the participants were single and 67.2% were high-school graduates, 61.4% mentioned that they were actually smokers and 31.4% mentioned that they never smoked, 0.9% of the participants were occupied in health related professions. Some of the socio-demographic attributes of the young adult males, participated in the study, are given in Table II.

23.3% of the participants mentioned that they had heard about testicular cancer, 14.1% that there was a cancer history in the family or among their relatives

		n	%
Age	20–21	3120	85.6
	22–24	462	12.7
	25 and above	63	1.7
Marital status	Single	3405	93.4
	Married	233	6.4
	Widowed-divorced	7	0.2
Place of birth	West	1045	28.7
	East	840	23.0
	Central	686	18.8
	North	601	16.5
	South	473	13.0
Settlement type of birth	State	1304	35.8
	District	898	24.6
	Town	610	16.7
Education level	Village	833	22.9
	Below primary school (4 years and less)	58	1.6
	Primary school (5 years)	149	4.1
	Secondary school (8 years)	838	23.0
Occupation	High school (11 years)	2450	67.2
	University-faculty graduate (13 years and above)	150	4.1
	Health related profession	32	0.9
Smoking habit	Other	3613	99.1
	Never smoked	1146	31.4
	Actually smoking	2237	61.4
	Previously smoking, quit	262	7.2

(3.2% within the family, 10.9% among other relatives). And 0.1% had testicular cancer among their relatives (Table III).

		n	%
Hearing about testicular cancer	Yes	849	23.3
	No	2796	76.7
Any cancer case in the family (1st degree relatives)	Yes	118	3.2
	No	3527	96.8
Any cancer history among other relatives	Yes	397	10.9
	No	3248	89.1
Cancer type among all relatives	Testicular cancer	3	0.1
	Other cancer	503	13.8
	No cancer	3139	86.1

6.8% of the participants mentioned that they have heard about TSE, 4.7% that they have performed TSE at least once during their life (Table IV).

		n	%
Hearing about TSE	Yes	249	6.8
	No	3396	93.2
Performance of TSE even at least once in life	Yes	170	4.7
	No	3475	95.3

54% of those participants, who even did not perform TSE once in their life, mentioned that they did not know how to make a TSE, 19.9% did not know why it was necessary to be performed, and 26.1% mentioned that they did not deem it to be necessary (Table V).

	n	%
Not knowing how to perform a TSE	1878	54.0
Not knowing why to perform a TSE	690	19.9
Deeming not necessary	907	26.1
Total	3475	100.0

The attributes of performing TSE in 170 participants, who mentioned that they have performed TSE at least once during their life, is given in Table VI. It was determined that 51.8% of these participants performed TSE in right frequency (at least once a month), and 48.8% at the right time (in bath and/or direct after bathing). It is determined that the ratio of the 41.2% of those, who mentioned performing TSE at the right time and

Table VI. Attributes of participants who performed TSE at least once in life (n=170)

		<i>n</i>	%
TSE performance frequency	Less than once a year	43	25.3
	Approximately once a year	17	10.0
	Approximately once every six months	11	6.5
	Approximately once every three months	11	6.5
	At least once a month*	88	51.8
TSE performance time	Before sleeping	19	11.2
	After waking up in the morning	15	8.8
	Directly before taking a bath	41	24.1
	In the bath*	76	44.7
	Directly after taking a bath*	7	4.1
	At any time	12	7.1
Performance of testis examination at right time and frequency	Yes	70	41.2
	Others	100	58.8
Source of information regarding TSE ^{&}	Learned myself	59	34.7
	Learned from friends	38	22.4
	Learned from health personnel	33	19.4
	Learned from TV/newspaper	20	11.8
	Learned from teacher	3	1.8
	Learned from the internet	2	1.2
	Learned from father	2	1.2
	Learned from girlfriend	1	0.6
How competent do you feel yourself on TSE	Learned from brother	1	0.6
	Know very well	18	10.6
	Know well	77	44.3
	Not sure	62	36.5
	Don't know	5	2.9

*Choices for performing testis examination at right time and frequency

[&]More than one choice is selected**Table VII. Behavior of participants at a suspicion on testicular cancer, the importance of TSE for early diagnosis of testicular cancer and whether they want to learn TSE or not, if they want to learn frequency of how they request it**

		<i>n</i>	%
What they will do when they detect a mass in the testis*	Immediately consult a physician	2916	80.0
	Talk to the family	905	24.8
	Ask friends	739	20.3
	Use medicine	140	3.8
	Wait until it disappears	246	6.7
	Look in the internet	6	0.2
	Research	9	0.2
	I don't know	16	0.4
Importance of TSE for early diagnosis of testicular cancer	No idea/don't know	2289	62.8
	No, no importance	66	1.8
	Very little importance	65	1.8
	Rather important	496	13.6
	Definitely very important	729	20.0
Would you like to learn how to perform TSE?*	I don't want to perform	651	17.9
	I want it to be taught by health personnel	1553	42.6
	I want it to be explained in form of conference	1302	35.7
	I want it to be shown as a film	1119	30.7
	I want to learn by the provision of brochures	584	16.0
	I want to learn it from TV	259	7.1
	I want to learn it from newspaper/magazine	191	5.2

*More than one choice selected

Table VIII. Comparison of sociodemographic and some descriptive attributes with performance of TSE at least once in life of participants

Attribute	Performance of TSE at least once in life				p*	
	Yes		No			
	n	%	n	%		
Age group	20–21	124	4.6	2574	95.4	0.016
	22–24	35	4.2	806	95.8	
	25 and above	11	10.4	95	89.6	
Marital status	Married	7	3.0	226	97.0	0.386
	Not married	163	4.8	3242	95.2	
Education level	Below primary school	1	1.7	57	98.3	0.281
	Primary school	6	4.0	143	96.0	
	Secondary school	38	4.5	800	95.5	
	High school	113	4.6	2337	95.4	
Occupation	University-faculty	12	8.0	138	92.0	0.007
	Health related	6	16.2	31	83.8	
Origin	Other	164	4.5	3444	95.5	0.028
	South	17	3.6	456	96.4	
Settlement unit of birth	West	43	4.1	1001	95.9	0.509
	East	35	4.2	806	95.8	
	Central	32	4.7	655	95.3	
	North	43	7.2	557	92.8	
	Village	33	4.0	800	96.0	
Smoking habit	Town	25	4.1	585	95.9	0.312
	District	47	5.2	851	94.8	
	Province center	65	5.0	1239	95.0	
	Never smoked	58	5.1	1088	94.9	
Hearing about testicular cancer	Smoking	96	4.3	2141	95.7	<0.001
	Smoked and quit	16	6.1	246	93.9	
Hearing about TSE	Yes	65	7.7	784	92.3	<0.001
	No	105	3.8	2691	96.2	
Cancer history among relatives	Yes	79	31.7	170	68.3	0.570
	No	91	2.7	3305	97.3	
Total	Existing	26	5.1	480	95.9	0.570
	Not existing	144	4.6	2995	95.4	
Total		170	4.7	3475	95.3	

* Fisher's Exact chi-square test

in right frequency, was 1.9% among all participants. 34.7% of those, who performed TSE at least once, mentioned that they learned to perform TSE by themselves, 22.4% from their friends, 19.4% from health personnel, 11.8% from printed and visual media, and 54.9% mentioned that they deemed themselves as capable regarding performing TSE.

In case of detecting a mass in their testis, 80.0% of the participants mentioned that would consult a physician, 24.8% that they would talk to their family, and 20.3% that they would ask their friends. Whilst 62.8% mentioned that they would not know about the importance of TSE for the early diagnosis of the cancer, 33.6% mentioned that they think that it was important. 42.6% of the participants wanted TSE to be taught by health personnel, 35.7% by explaining

in form of a conference, 30.7% by showing in form of a film and 16.0% by providing brochures (Table VII).

The distribution of participants according to performance of TSE at least once in their lives according to the socioeconomic and their descriptive attributes is given in Table VIII. That, even only once in their life, the TSE performance ratio in the age group of 25 and above, at employees of profession branches related to health and those who heard about testicular cancer and TSE is deemed to be statistically significant. Beside this, when locations of birth is respected, it is seen that there are differences at statistically significant level between regions and that it is highest in northern regions ($p < 0.05$). Although it is observed that there is an increase of performing TSE the more the education level increases, this is not deemed statistically significant. Along with this, when the mari-

Table IX. Comparison of some attributes of the participants with the average of correct answers on the questions of the knowledge tests applied regarding performance of TSE and testicular cancer and its symptoms

		<i>n</i>	<i>Average</i>	<i>SS</i>	<i>p value</i>
Age group	20–21 years old	2698	2.3	2.8	<0.001 ^{&}
	22–24 years old	841	2.5	2.8	
	25 and older	106	3.4	3.3	
Marital status	Married and widowed	240	2.3	3.1	0.166*
	Single	3405	2.4	2.8	
Educational status	Below primary school	58	1.7	2.7	<0.001 ^{&}
	Primary school	149	2.4	3.1	
	Secondary school	838	2.1	2.8	
	High school	2450	2.4	2.8	
Place of birth (Demographical region)	University-faculty	150	3.0	3.1	0.323 ^{&}
	South	473	2.3	2.8	
	East	841	2.3	2.9	
	Central	687	2.4	2.9	
	North	600	2.4	2.7	
Settlement unit of birth	West	1044	2.4	2.9	0.925 ^{&}
	Village	833	2.4	2.9	
	Town	610	2.4	2.9	
	District	898	2.3	2.8	
Occupation	Province	1304	2.4	2.8	0.053*
	Health related	37	3.3	3.2	
Hearing about TSE	Other	3608	2.5	2.8	<0.001*
	Yes	249	3.9	3.3	
Performance of TSE	No	3396	2.3	2.8	<0.001*
	Yes	170	4.4	3.7	
Cancer story among 1st grade relatives	Other	3475	2.3	2.8	0.553*
	Yes	506	2.4	2.7	
Hearing about testicular cancer	No	3139	2.4	2.8	<0.001*
	Yes	849	3.1	3.1	
Smoking habit	No	2796	2.1	2.7	0.024 ^{&}
	Yes	1146	2.5	3.0	
	Used to smoke	2237	2.3	2.8	
		262	2.6	2.8	

[&]Kruskal-Wallis H test

*Mann-Whitney U test

tal status, birth-living unit, smoking habit, cancer history among relatives are respected, the difference of TSE performance frequency is not deemed to be statistically significant ($p>0.05$).

As a result of the knowledge test applied regarding TSE and testicular cancer and its indicators, the socio-demographic and descriptive attributes of the participants and their ratio of giving right answer are given in Table IX. It is determined that the more the number of correctly answered questions increases the more the age and education level increases. This increase is deemed to be statistically significant in those who had heard about TSE, performed TSE, heard about testicular cancer and non-smokers.

The information source of those participants, who performed TSE, even only once in their life, and the

Table X. Comparison of information sources and correct answer average of the knowledge tests of TSE performing participants

			<i>n</i>	<i>mean</i>	<i>SS</i>	<i>p*</i>
Information source for TSE (n=170)	Himself	Yes	59	3.8	3.6	0.140
		No	111	4.7	3.6	
	Health personnel	Yes	33	5.6	4.1	0.064
		No	137	4.1	3.5	
	Friends	Yes	42	4.0	3.0	0.527
		No	128	4.5	3.8	
	TV/Newspaper	Yes	20	5.6	3.6	0.088
		No	150	4.2	3.6	
	Teacher/Lessons	Yes	3	3.3	2.9	0.675
		No	167	4.4	3.7	
	Internet	Yes	2	7.0	2.8	0.314
		No	168	4.3	3.7	

*Mann-Whitney U

averages of correct answers they gave to questions regarding TSE, testicular cancer and its indicators in the knowledge test are examined and the average of correct answers of those, who mentioned health personnel, TV/newspaper, internet as the information source is determined as being a little bit higher, but this difference is not statistically significant ($p>0.05$) (Table X). Beside this, regarding the status of giving correct answers to all questions in the knowledge test, the frequency of performing TSE among those, who gave correct answers, is determined that their TSE performance frequency is higher.

Discussion

In this study performed in order to determine the performance frequency of TSE among young adults by themselves and the effective factors, it was determined that 6.8% of the participants heard about TSE, that 4.7% performed TSE even if at least once in their life, that 2.4% performed TSE at least once a month and that 2.3% performed it in the bath and/or directly after bathing.

Although the frequency of hearing about and performing TSE in our study shows similarities to some studies given in Table 1, they are determined to be much lower than of many other studies. Similarly it is determined that the frequency of awareness of testicular cancer is low.

The great differences of the results between the studies of Ercan et. al. on university students and the one of Moore et. al. on university students and graduates in London results in the thought that the frequency for performing TSE is rather related to the awareness of the society than to the education level. In our study, even if an increase is to be seen at the performance of TSE with the increase of the education level, this is not deemed to be statistically significant. These findings support the thought that the awareness of the society is more efficient.

In our study, the frequency of those, who perform TSE at least once a month (2.4%) is found to be less compared to many other studies (Khadra et. al.; 22% (7), Moore et. al.; 22% (8), Wardle et. al.; 13% (12), Neef et. al.; 22% (13), Christine et. al.; 36% (15)). The reason for that the results of the studies of Moore and Khadra may be that the ages of the participants were high and that these were performed among persons, who consulted the polyclinic (7,8).

In our study, those who think that TSE is important for the early diagnosis of testicular cancer constitu-

ted 35.4% of the participants. Rodrigues et. al., who performed a similar study among university students, determined that the participants are not aware about the importance of TSE for an early testicular cancer diagnosis (16). In our study, the participants answered the questions regarding the symptoms of testicular cancer by 17.6% like knob in the testis, 22.3% pain in the groin, 13.6% heaviness feeling of the testis choices correctly. Similar results are achieved in other studies in the literature; in the study of Ercan et. al. among university students 22.3% mentioned that a swelling of the testis, 29.9% that a pain in the groin or a feeling of heaviness are the symptoms of testicular cancer (6). Beside this, in the study of Rodrigues et. al. performed among university students, it is determined that only 2.4%, and that of Klein et. al. among male of the ages 15-20 years only 1.5% of the participants know the symptoms of testicular cancer (16,17).

In our study, the correct answering of all questions of the applied knowledge test regarding TSE, testicular cancer and symptoms and the frequency of performing TSE is examined and it is determined that the TSE performance frequency is higher among those who answered the questions correctly. This finding led to the thought that the information of the society will contribute to the increase of the TSE performance frequency.

One of the reasons for that at the study performed in London by Khadra et. al. may be that the country-wide "Everyman" campaign in England regarding testicular cancer and TSE was positively perceived by the society (7).

In our study it is determined that the frequency of hearing about TSE and performing TSE among the reached population is very low, but that this is higher among those who heard of testicular cancer. Beside this, it is determined that nearly four of five of the participants want to learn TSE.

By the organization of well planned educations, supported by various educational materials, in order to increase the awareness on testicular cancer and the TSE performance frequency, country-wide applied campaigns, the awareness and knowledge of the society regarding testicular cancer and TSE may be increased. Therefore, the attention may be directed to a health problem which people are not enough aware of and which may be prevented by early diagnosis. As a result of this, the early diagnosis of testicular cancer may increase the treatment possibility.

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