

Original article

Public awareness of testicular cancer and self-examination in Turkey: A multicenter study of Turkish Urooncology Society

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Abstract

Background: Testicular self-examination is the easiest and cheapest way to scan testicular cancer. However, the public awareness about testicular self-examination is very low. We aimed to investigate the public awareness of Turkish people about testicular cancer and testicular self-examination.

Methods: We performed a survey consisting of 10 questions concerning testicular cancer and testicular self-examination in 799 students in the first year of 12 different medical schools. Aiming for a common method of data collection, the questionnaires were administered to the students during a class just before the lesson started. The whole data from all of the centers were pooled in a common data-base file.

Results: Eighty-nine (11.1%) of the participants reported that they had knowledge about testicular cancer, but only 11 (1.4%) of them answered all the questions about testicular cancer correctly. Eight (1%) of the participants reported that they had been performing testicular self-examination routinely once a month. Four (0.5%) of them were both well informed about testicular cancer and had been performing testicular self-examination once a month as suggested.

Conclusion: The present study showed that awareness on testicular cancer and testicular self-examination is very low and suggests a need for efforts in Turkey to increase public awareness and education. © 2013 Elsevier Inc. All rights reserved.

Keywords: Survey; Testicular cancer; Testicular self-examination

1. Introduction

Testicular cancer (TC) represents between 1% and 1.5% of male neoplasm. The histologic type varies, although there is a clear predominance (90%–95%) of germ cell tumor. Peak incidence is in the third decade of life for nonseminoma and in the fourth decade for pure seminoma. The most common presenting symptom is the painless swelling in the testis. Testicular tumors show excellent cure rates. The main

factors contributing to this are careful staging at the time of diagnosis; adequate early treatment based on chemotherapeutic combinations, with or without radiotherapy and surgery (radical orchiectomy), and very strict follow-up and salvage therapies [1]. In the last decade, a decrease in the mean time delay to diagnosis and to treatment has been observed [2].

Testicular self examination (TSE) is the method for early detection of the physical abnormalities in the testis. The American Medical Association and the American Urological Association promote and support public awareness and education of TSE for early detection of TC. However, the studies in literature describe limited awareness of men about

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TC and TSE in the world [3–10]. In this epidemiological study, we investigated the public awareness of TC and TSE in Turkey.

2. Patients and methods

In September 2009, we performed a survey consisting of 10 questions concerning TC and TSE in 799 students in the first year of 12 different medical schools. The questionnaires were administered in the first week of the new academic year after having obtained research ethics committee approval of each university. The questions are presented in Table 1. We targeted this population for several reasons: (1) the participants were in the age group with peak incidence of TC (third decade), (2) the sociocultural level of these participants was assumed to be higher than the average; however, they had not started their medical training yet, (3) they were coming from different demographic parts of the country, so we assumed that the group had the ability to represent the whole of the country, and (4) they were easy to reach.

Aiming for a common method of data collection, the questionnaires were administered to the students during a class just before the lesson started. Students were informed that the inquiry was prepared and performed by Turkish Urooncological Association in order to evaluate the national public awareness of TC and the data would be used only for investigation. After the students answered the questions, the questionnaires were collected. Then, the data from all of the centers were pooled in a common data-base file.

Statistical Package for Social Sciences for Windows 15.00 program (SPSS Inc., Chicago, IL) was used for descriptive statistics and statistical analysis of data. We constructed a confidence interval (CI) for the population parameter and also performed *t*-test for the population proportion and comparison of different groups.

3. Results

A total of 799 students from 12 different university participated to the inquiry. The mean age of the participants was 18.7 ± 1.1 years (range 17–25). Eighty-nine (11.1%) of the participants reported that they had knowledge about TC and 11 (1.4%) of them answered all the questions about TC correctly. Among from these 89 participants, 55 (67.1%) declared that they got information about TC from internet and media communications, while 5 (5.6%) from school, 10 (11.2%) from friends, 2 (2.2%) from others, and only 10 (11.2%) from medical references. Seven of them did not specify any references. Among 11 participants who answered all questions about TC correctly, 4 (36%) of them reported that they got information about TC from their friends, 3 (27%) from medical references, and 3 (27%) from

media and internet communications, while one did not give any reference.

Twenty (2.5%) of the participants had been performing TSE; of these, 8 (1%) had been performing TSE routinely once a month (sample proportion). The corresponding 99% CI for the population proportion is (0.02), which means that the Turkish population proportion for TSE is somewhere between 0 and 0.02.

The participants who had been performing TSE ($n = 20$) had significantly higher accuracy rates than the participants who had never performed TSE ($n = 779$) for questions on TC (Question 5 and 6) (45% vs. 1% for Question 5 and 35% vs. 2% for Question 6, $P = 0.01$ for both, respectively).

Overall, only 11 (1.4%) of them were well informed about TC, 8 (1%) had been performing TSE routinely once a month, while 4 (0.5%) were both well informed about TC and had been performing TSE once a month as suggested. Sixteen (2%) of them reported that they knew patients who had a diagnosis of TC.

4. Discussion

There is still some controversy in performing TSE for screening TC. Some authors argue that TSE may cause undue anxiety, work absence, and unnecessary visits to the physician since there is no evidence to date that routine TSE is beneficial for survival [11]. On the other hand, most of the authors support teaching and performing TSE because there is much evidence suggesting a significant association between delay in presentation and clinical stage at diagnosis [3–7]. Although high success rates were reported even in treatment of advanced TC by radiotherapy and chemotherapy, early diagnosis of testicular cancer is likely to be associated with simpler and less toxic treatment.

In the United Kingdom, over the last 10 years, there has been a focus on increasing public awareness of testicular cancer. The efforts have included the publication of awareness leaflets, media campaigns advocating TSE with high profile celebrities (e.g., singer Robbie Williams), and a practical demonstration of TSE on television. An inquiry study concerning TC that was performed on 202 men, age range between 18 and 50 years in London found that 91% of the participants were aware of TC and 22% of them had been regularly performing TSE once a month as suggested. They also found that 56% had gained the knowledge from media and internet communication, and 16% from a general practitioner. They also pointed out that men's health clinics and public health campaigns might be effective in getting the message across to the public [3].

The majority of surveys dating from around 1990 in the United States show TSE practice rates in university students and other males to vary from 5% to 19% [4,5]. A cross-sectional study was conducted of all pediatric residents at 2 pediatric residency programs during the 2000–2001 academic year in United States. Among 200 participants,

Table 1
The inquiry form about testicular cancer

1	Your age	
	By number <input type="text"/>	In words <input type="text"/>
2	The city in which you have graduated from high school?	
	Plate number <input type="text"/>	City name <input type="text"/>
3	Do you have any information about testicular cancer ?	
	<input type="checkbox"/> Yes	<input type="checkbox"/> No Please go to question # 10.
4	Where did you get the information about testicular cancer ?	
	a. Media, Internet communications	<input type="checkbox"/> <input type="checkbox"/>
	b. School	<input type="checkbox"/> <input type="checkbox"/>
	c. Friends	<input type="checkbox"/> <input type="checkbox"/>
	d. Medical references	<input type="checkbox"/> <input type="checkbox"/>
	e. Other	<input type="checkbox"/> <input type="checkbox"/> Please explain <input type="text"/>
5	Do you know the age that testicular cancer is mostly seen?	
	<input type="checkbox"/> Yes	<input type="checkbox"/> No Please go to next question
	Please chose the most appropriate one	
	a. 0–15	<input type="checkbox"/> <input type="checkbox"/>
	b. 16–35	<input type="checkbox"/> <input type="checkbox"/>
	c. 36–55	<input type="checkbox"/> <input type="checkbox"/>
	d. 55+	<input type="checkbox"/> <input type="checkbox"/>

Table 1
Continued

6	Do you know the symptom that is mostly seen in testicular cancer?	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Please go to next question
	Please pick the the most appropriate one	
	a. Pain	<input type="checkbox"/> <input type="checkbox"/>
	b. Testicle swelling	<input type="checkbox"/> <input type="checkbox"/>
	c. Eritema	<input type="checkbox"/> <input type="checkbox"/>
	d. Hematuria	<input type="checkbox"/> <input type="checkbox"/>
7	Do you know how to perform testicular self examination?	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Please go to question # 10
8	Do you perform testicular self examination?	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Please go to question # 10
9	How often do you perform?	
	a. Monthly	<input type="checkbox"/> <input type="checkbox"/>
	b. Every 3 months	<input type="checkbox"/> <input type="checkbox"/>
	c. Every 6 months	<input type="checkbox"/> <input type="checkbox"/>
	d. Every year	<input type="checkbox"/> <input type="checkbox"/>
	e. Other	<input type="checkbox"/> <input type="checkbox"/>

Table 1
Continued

10 Do you know anyone who has a diagnosis of testicular cancer ? What is the degree of your relation?

Yes No

Please chose the appropriate one(s)

a. First degree relative (father, brother) Indicate

b. Second degre relative (uncle ect.) Indicate

c. Less than first or second degree relative Indicate

d. Unrelated (friends, famous people ect.) Indicate

85.7% were aware of TSE in early diagnosis of TC, 29% of male residents perform TSE on themselves at least once a month following the current recommendation. Also, 40% of the residents informed their adolescent patients about TC and TSE [6]. In 1993, Singer and coworkers reported that 30% of male soldiers were aware of their risk of TC, 16% were taught TSE, and only 2% performed it regularly. Also, they reported that 22% of the military physicians practiced TSE themselves and 16% of them taught the importance of TSE to their patients [7]. In the year 2000, Tom Green, the unconventional MTV personality and comedian, was diagnosed with testicular cancer and underwent orchiectomy and retroperitoneal lymph node dissection. The footage of his surgery was shown on MTV as part of a campaign to increase public awareness on TC and encourage men at risk to perform self-examination.

The European Health Behavior Study (EHBS), which was carried out in a sample of 16,486 university students in 21 European countries between 1989 and 1991, reported that the average rate of TSE was 12.8% (range between 2.3% in Iceland and 23.6% in Germany) [8]. Recently, Casey and coworkers reported the survey results of 677 male volunteers and compared them with those of a previous study that was performed 25 years ago in the same country [9]. The age range of these men was 18–67 years (mean 44.9). There was an increased public awareness about TC and regular TSE performance compared with the previous study (99.4% vs. 68% for TC, 4% vs. 1.3% for TSE). However, the data from both studies demonstrate selection bias and may not reflect general population trends or attitudes. Also, the mean age of 44.5 years does not

represent the group of patients who may develop TC and for whom TSE and TC knowledge is vital [9].

There is only one published study concerning TSE in Turkey. The study consisted of 106 male participants from a single city. Only 14.2% of them stated that they knew about TSE and 4.7% of them reported that they performed regular TSE once a month as suggested [10]. This study was localized and had smaller number of participants compared with our study.

In the present study, we investigated the awareness about TC and TSE among 799 students in the first year of medicine faculty of 12 different universities as expected to be

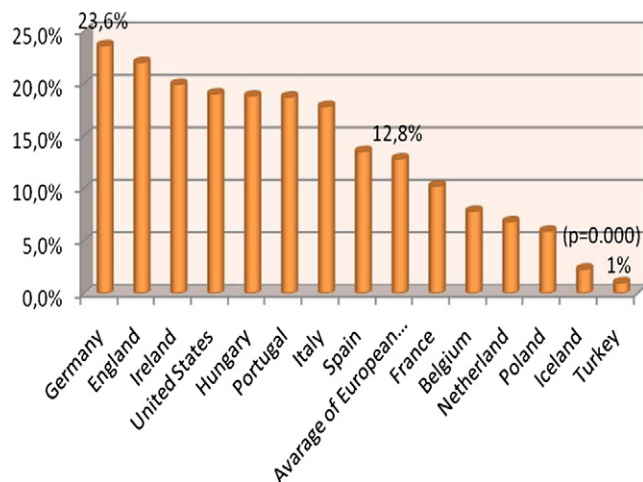


Fig. 1. Testicular self-examination rates of different countries and Turkey. (Color version of figure is available online.)

reflecting the whole of the country. We reported that 11.1% of the participants were aware of TC, whereas only 1.4% had sound knowledge about TC and 1% had been performing TSE routinely once a month as suggested. The results of the present study showed that the rate of regular TSE in Turkey was significantly lower than the rates of European countries and United States ($P = 0.00$) (Fig. 1).

The participants who had been performing TSE had significantly higher accuracy rates for questions on TC. This finding suggests that knowledge on testicular cancer results in higher rates of TSE.

5. Conclusion

The present study showed that awareness on TC and TSE is very low, even in a population from a relatively high sociocultural part of society. These findings suggest a need for efforts in Turkey to increase public awareness and education of young men on TC and its symptoms.

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