Saudi patient knowledge and awareness regarding smoking as a risk factor for urological diseases

Raed Mohammed Almannie, Mohammed Saud Abunayan, Abdullah Mohammed Alkhayal[1,2], Ahmed Yahya Alzahrani[3], Tarek Mohammad Alzahrani[3], Saleh Abdulrahman Binsaleh, Fahad Ali Alyami

Department of Surgery, Urology Division, College of Medicine, King Saud University, [1]Department of Urology, King Saud Bin Abdulaziz University for Health Sciences, [2]King Abdullah International Medical Research Center, [3]Department of Urology, Prince Sultan Military Medical City, Riyadh, Saudi Arabia

Abstract

Aim: Our aim was to evaluate Saudi patient knowledge and awareness regarding smoking as a risk factor for bladder cancer, kidney cancer, and erectile dysfunction (ED).

Settings and Design: This quantitative cross-sectional study was conducted across three major tertiary hospitals in Riyadh, the capital city of Saudi Arabia.

Material and Methods: A self-administered questionnaire was distributed to 539 patients in the urology outpatient clinic.

Statistical Analysis: Data were analyzed using the Statistical Package for the Social Studies 21.0. For descriptive statistics, the frequency was calculated for all study variables. Chi-squared test was used for categorical variables. $P < 0.05$ was considered statistically significant.

Results: A total of 539 urological patients completed the questionnaire. There were 460 (85.4%) male and 79 (14.6%) female respondents. Only 60.9%, 41.2%, and 36.9% of participants were aware that smoking was a risk factor for ED, kidney cancer, and bladder cancer, respectively.

Conclusions: The knowledge and awareness were low among urological patients regarding smoking as a risk factor for urological diseases.

Keywords: Bladder cancer, erectile dysfunction, knowledge and awareness, Saudi Arabia, smoking

INTRODUCTION

Bladder cancer is the eighth most common cancer affecting Saudi males.[1] It causes substantial health care burden with one of the highest per-patient costs.[2] Smoking increases bladder cancer risk by up to four times and causes an estimated 50% of cases.[3-5] Smoking also increases the risk of erectile dysfunction (ED).[6-8]

Despite a 21.4% smoking prevalence,[9] Saudi Arabia has few studies assessing knowledge regarding smoking as a risk factor for urological diseases. We explored the knowledge of Saudi patients in the urology clinic about related morbidities of smoking and determined the age of smoking onset for the best age for preventive education.

Access this article online

Quick Response Code:

Website:
www.urologyannals.com

DOI:
10.4103/UA.UA_92_20

MATERIAL AND METHODS

This was a questionnaire-based multicenter quantitative cross-sectional study done in the urology outpatients department in three tertiary hospitals between January 2019 and March 2019.

An Arabic self-administered questionnaire was developed based on previous studies [Appendix 1].[10-14] The questionnaire contained 16 questions over two pages divided into three sections. The first section included demographic characteristics such as age, gender, education level, and history of cancer. The second section included assessment of knowledge regarding smoking as a risk factor for bladder cancer, kidney cancer, lung cancer, mouth cancer, stroke, heart disease, chronic obstructive pulmonary disease (COPD), and ED. The third section included smoking status and whether smokers were advised by their physician to quit.

The study included 539 patients; the questionnaire was distributed in the urology outpatient clinic. Participants' anonymity was ensured by assigning each participant with a code number. No incentives or rewards were given to participants. A consent form was provided, which included the purpose of the study and information on the right to withdraw at any time without completing the questionnaire.

Ethical approval was obtained from the institutional review board at XXX University. Data were analyzed using Statistical Package for Social Studies (SPSS 21; Chicago IL, USA). Chi-squared test was used for categorical variables. $P < 0.05$ was considered statistically significant.

RESULTS

A total of 539 patients completed the questionnaire. There were 460 (85.4%) male and 79 (14.6%) female respondents [Table 1]. illustrates the participants' demographic characteristics and history of cancer.

Respondents were more aware of smoking being a risk factor for respiratory and cardiovascular diseases than urological diseases. Knowledge of the risk was >80% for heart and lung diseases. However, knowledge of the risk was 60.9% for ED, 41.2% for kidney cancer, and only 36.9% for bladder cancer [Table 2].

Regarding the detailed analysis of participants' smoking status, 76.1% of the respondents did not smoke, 10.6% were ex-smokers, and 13.4% were current smokers. Most respondents with smoking history had started smoking before the age of 22 years (82%), and most of them

Table 1: Demographic characteristics and cancer status of respondents

Demographic characteristics	Frequency (%)
Gender	
Male	460 (85.3)
Female	79 (14.7)
Age	
18–24	44 (8.2)
25–44	198 (36.7)
45–64	179 (33.2)
65–84	107 (19.9)
85–95	11 (2.0)
Education	
Illiterate	37 (6.9)
Elementary school	64 (11.9)
Middle school	61 (11.3)
High school	148 (27.5)
Diploma	41 (7.6)
Bachelor's degree	154 (28.6)
Master's degree	20 (3.7)
Doctorate	14 (2.6)
History of cancer	
No	516 (95.7)
Yes	23 (4.3)

Table 2: Knowledge and awareness of respondents

Knowledge of smoking a risk factor for various diseases	
Disease	Frequency (%)
Lung cancer	464 (86.1)
Heart disease	443 (82.2)
COPD	439 (81.4)
Mouth cancer	414 (76.8)
Erectile dysfunction	328 (60.9)
Stroke	318 (59)
Kidney cancer	222 (41.2)
Bladder cancer	199 (36.9)

COPD: Chronic obstructive pulmonary disease

smoked >20 cigarettes a day [Table 3]. The attending urologist advised the patient to quit smoking for 47 (65.3%) of current smokers, and 25 (34.7%) respondents reported that no such advice was given by their urologist.

The perception of smoking as a risk factor for bladder cancer showed a significant difference for age, while kidney cancer showed a significant association with smoking status (<0.001). However, perception of ED as a risk factor was significantly associated with education level [Table 4].

DISCUSSION

The regular use of tobacco increases the risk of multiple urological diseases. The pathogenic characteristics and effects of tobacco may serve to be a major contributor toward genitourinary diseases.

In our study, only 36.9% and 41.2% respondents were aware that smoking was a risk factor for bladder cancer and kidney cancer, respectively, compared to 86.1% and 81.4% who were aware of it as a risk factor for lung cancer

Table 3: Smoking status, smoking habits, and characteristics of current smokers and ex-smokers

Smoking status and smoking habits	Frequency	Percentage
Smoking status		
Nonsmoker	410	76.1
Current smoker	72	13.4
Ex-smoker	57	10.6

Smoking status and smoking habits	Number of current smokers	Number of former smokers
Age of smoking onset		
13-17	20	18
18-22	42	26
23 and above	10	13
Number of cigarettes consumed per day		
1-9	3	18
10-19	24	17
20-29	38	16
30 and above	7	6
Years of smoking		
1-10	19	16
11-20	22	26
21-30	9	8
31 and above	22	7

Table 4: Respondent characteristics associated with perception of smoking as a risk factor for bladder cancer, kidney cancer, and erectile dysfunction

	P		
	Bladder cancer	Kidney cancer	Erectile dysfunction
Gender	0.887	0.392	0.109
Age	0.031*	0.260	0.272
Education	0.235	0.604	0.019*
History of cancer	0.741	0.878	0.527
Smoking status	0.093	0.0003*	0.933

*Significant P ($<$0.05)

and COPD, respectively, similar to previous studies.[10-15] However, 60.9% were aware that smoking was a risk factor for ED, which is significantly higher than previous studies.[12,14] Clearly, our study shows that the knowledge of smoking as a risk factor for urological diseases was not optimal among participants. A greater proportion of respondents were aware that smoking could be a risk factor for major respiratory diseases; however, awareness regarding smoking as a risk factor for urological diseases was low.

Perception of smoking as a risk factor for bladder cancer, kidney cancer, and ED showed no statistically significant difference for gender, which is similar to certain previous studies,[12-15] while contradicting other studies that showed variability with gender.[10,11] Furthermore, age showed a statistically significant difference for the perception of smoking as a risk factor for bladder cancer, which is not consistent with the literature.[10,12-15] However, such an association was not found for kidney cancer and ED, similar to previous studies.[11,12,14]

Education level showed a significant association with perception of smoking as a risk factor for ED, which is similar to one previous study,[12] but contradicts another study.[14] The perception of smoking as a risk factor for bladder cancer showed no association with smoking status, similar to some studies,[10,15] but contradicting others.[12,14] Perception of smoking as a risk factor for kidney cancer was associated with smoking status, consistent with one study,[12] but not with others.[11,14] Perception of smoking as a risk factor for ED showed no association with smoking status, which is not consistent with previous studies.[12,14]

In summary, the perception among respondents regarding smoking as a risk factor associated with the above-mentioned diseases was unrelated to their gender as well as their history of cancer. In contrast, education level, age, and smoking status were found to be significantly associated with the knowledge regarding smoking as a risk factor for the diseases.

In our study, only 65.3% of smokers were advised to quit smoking by their urologist, which is considered low. Each physician should ideally be a health advocate, and modifiable risk factors should be given particular attention. Thus, this study suggests that more effort is needed from urologists in educating their patients regarding the risks of smoking. In busy circumstances, preventive education can be implemented through minimal effort through flyers and waiting room television.

Current smokers and ex-smokers represented 24% of the respondents. Most respondents with smoking history started smoking before the age of 22 years (82%). This might suggest that the best timing to begin smoking awareness programs is during high school education.

A limitation of our study is the limited target population, which might limit the generalizability of the results to the general population. Despite this limitation, to our knowledge, this is the only study conducted in Saudi Arabia on patient knowledge regarding the association of smoking with bladder cancer, kidney cancer, and ED.

CONCLUSIONS

Patient awareness about smoking as a risk factor for urological diseases is low. Further awareness campaigns about the risks of smoking need to target these diseases. Before the age of 22 years might be the most effective timing to implement age-targeted campaigns. Physicians should spend extra effort in educating their patients about the risks of smoking.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Bazarbashi S, Al Eid H, Minguet J. Cancer incidence in Saudi Arabia: 2012 Data from the Saudi cancer. Registry Asian Pac J Cancer Prev 2017;18:2437-44.
2. Yeung C, Dinh T, Lee J. The health economics of bladder cancer: An updated review of the published literature. Pharmacoeconomics 2014;32:1093-104.
3. Kirkali Z, Chan T, Manoharan M, Algaba F, Busch C, Cheng L, *et al.* Bladder cancer: Epidemiology, staging and grading, and diagnosis. Urology 2005;66:4-34.
4. Cumberbatch MG, Rota M, Catto JW, La Vecchia C. The role of tobacco smoke in bladder and kidney carcinogenesis: A comparison of exposures and meta-analysis of incidence and mortality risks. Eur Urol 2016;70:458-66.
5. van Osch FH, Jochems SH, van Schooten FJ, Bryan RT, Zeegers MP. Quantified relations between exposure to tobacco smoking and bladder cancer risk: A meta-analysis of 89 observational studies. Int J Epidemiol 2016;45:857-70.
6. Cao S, Yin X, Wang Y, Zhou H, Song F, Lu Z. Smoking and risk of erectile dysfunction: Systematic review of observational studies with meta-analysis. PLoS One 2013;8:e60443.
7. Yafi FA, Jenkins L, Albersen M, Corona G, Isidori AM, Goldfarb S, *et al.* Erectile dysfunction. Nat Rev Dis Primers. 2016 Feb 4;2:16003. doi: 10.1038/nrdp.2016.3. PMID: 27188339; PMCID: PMC5027992.
8. McVary KT, Carrier S, Wessells H, Subcommittee on Smoking and Erectile Dysfunction Socioeconomic Committee, Sexual Medicine Society of North America. Smoking and erectile dysfunction: Evidence based analysis. J Urol 2001;166:1624-32.
9. Algabbani AM, Almubark R, Althumiri N, Alqahtani A, BinDhim N. The prevalence of cigarette smoking in Saudi Arabia in 2018. Food Drug Regul Sci J 2018;1:1.
10. Nieder AM, John S, Messina CR, Granek IA, Adler HL. Are patients aware of the association between smoking and bladder cancer? J Urol 2006;176:2405-8.
11. Parker AS, Arnold ML, Diehl ND, Hassan L, Thiel DD. Evaluation of awareness of risk factors for kidney cancer among patients presenting to a urology clinic. Scand J Urol 2014;48:239-44.
12. Bjurlin MA, Cohn MR, Freeman VL, Lombardo LM, Hurley SD, Hollowell CM. Ethnicity and smoking status are associated with awareness of smoking related genitourinary diseases. J Urol 2012;188:724-8.
13. Mithani MH, Khan SA, Khalid SE, Siddique R, Humayun H, Awan AS. Awareness of risk factors and fallacies associated with urinary bladder cancer in our population: A prospective survey. J Pak Med Assoc 2018;68:55-8.
14. Khan M, Papa N, Manning T, Nzenza T, Simionato L, Lawrentschuk N. Knowledge of smoking as a risk factor for disease among urology clinic patients in Australia. World J Urol 2018;36:1219-24.
15. Anastasiou I, Mygdalis V, Mihalakis A, Adamakis I, Constantinides C, Mitropoulos D. Patient awareness of smoking as a risk factor for bladder cancer. Int Urol Nephrol 2010;42:309-14.

APPENDIX

Appendix 1: (Text 1) The Arabic version of the questionnaire

1. ....:رمعلا

2. ىثنأ □ ركذ □ :سنجلا

3. :يسارد لا لهؤملا
..............ىرخأ □ هاروتكد □ ريتسيجام □ سويرولكبلا □ مولبد □ يوناث □ يدادعا □ يئادتبا □

4. ؟ةيلوبلا كلاسملا ةدايع لع كترايز ببس وه ام (حيضوتلا ىجري)

....

....

....

....

....

5. ؟ناطرسلا ضرم نم ينياعت له

ال. □

....؟وه ام .معن □

			6. ىلا حد كملع، له تعقد نا نيخدتلا ببسي يف ةدايز الإصابة بالأمراض التالية؟ (الرجاء الإجابة على جميع الأمراض)
ملعا ال □	ال □	معن □	1. ناطرس ةئرلا
ملعا ال □	ال □	معن □	2. ضارما ةئرلا ةنمزملا
ملعا ال □	ال □	معن □	3. ناطرس ةيلكلا
ملعا ال □	ال □	معن □	4. ناطرس ةناثملا
ملعا ال □	ال □	معن □	5. ناطرس مفلا
ملعا ال □	ال □	معن □	6. ضارما بلقلا
ملعا ال □	ال □	معن □	7. ةطلج ةيغامد
ملعا ال □	ال □	معن □	8. فعض الانتصاب

.الرجاء الانتقال للصفحة التالية.

7. ؟نخدم تنا له

□ معن. (اذإ تبجا معن، الرجاء الانتقال ىلا لودجلا ،"أ").

□ نخدم قباس. (اذإ تبجا كنأ نخدم قباس، الرجاء الانتقال ىلا لودجلا ،"ب").

□ ال. (اذإ تبجا ال، اركش لقد انتهى الاستبيان).

ßv لودج "أ": اذإ تنا نخدم الرجاء الإجابة على الأسئلة التالية:

1. مك ناك كرمع امدنع تأدب تنخدت؟
2. مك لدعم يموي سيجار ة تنخدت نم ابلوي؟
3. مك المدة التي قضيتها بالتدخين؟ هنس . رهش
4. هل ماق تطبيكبك المختص بالمسالك البولية بتقديم النصيحة عن تنخدين او مضارة؟
□ ال.
□ معن.
5. هل ماق أي طبيب خر آخر بتقديم النصيحة عن تنخدين او مضارة؟
□ ال.
□ معن.

v؛ لودج "ب": اذإ تنك نخدم قباس الرجاء الإجابة على الأسئلة التالية:

1. مك ناك كرمع امدنع تأدب تنخدت؟ .
2. منذ متى تنفقوت نع تنخدين؟ هنس . رهش
3. مك المدة التي قضيتها بالتدخين؟ هنس . رهش
4. هل ناك ببس كفقوت نع تنخدين ببسب حالتك الصحية او تشخيص طبي؟
□ ال.
□ معن (اذإ تبجا معن، الرجاء توضيح التشخيص الطبي). .

.اركش، تمنياتنا لكم بالصحة والعافية.

(Text 2) The English version of the questionnaire.

1. **Age:** …………….
2. **Gender:**   □ Male   □ Female
3. **Level of education:**
   □ Elementary □ Middle school □ High school □ Diploma □ Bachelor □ Masters □ Doctorate □ Other, please specify :……………….
4. **What is the reason for your visit today?**
   ……
   ………………………………………
5. **Have you been diagnosed with any type of cancer?**
   □ No
   □ Yes

6. To the best of your knowledge, does smoking increase the risk of getting each of the following diseases? (Please respond to each disease)

1.	Lung cancer	□ Yes	□ No	□ Don't know
2.	COPD	□ Yes	□ No	□ Don't know
3.	Kidney cancer	□ Yes	□ No	□ Don't know
4.	Bladder cancer	□ Yes	□ No	□ Don't know
5.	Mouth cancer	□ Yes	□No	□ Don't know
6.	Heart disease	□ Yes	□ No	□ Don't know
7.	Stroke	□ Yes	□ No	□ Don't know
8.	Erectile dysfunction	□ Yes	□ No	□ Don't know

Please turn to the next page

7. **Do you smoke cigarettes?**
   *Do yo□ (Please answer Table A)
   *(Please ans□ (Please answer Table B)
   *(Please□ (Thank you, this is the end)

Table(A) If you are Current Smokers, please answer the following:

8. How old were you when you started smoking? …………. years
9. On an average day, how many cigarettes do you smoke? …………… cigarette (s)
10. About how long have you used tobacco? ………… year (s) …………. month (s)
11. Did your urologist advise you to stop smoking?
   □ No
   □ Yes
12. Did any other doctor advise you to stop smoking?
   □ No
   □ Yes

Table (B) If you are Ex-smokers, please answer the following:

13. How old were you when you started smoking? …………. years
14. How long since you quit smoking?. year (s) …………… month (s)
15. About how long did you smoke? ………………year (s) ………………month (s)
16. Was your decision to quit smoking related to a health condition or diagnosis?
   □as
   □as your decision to quit smokin…………………………..

Thank You