

## The attitudes of surgeons concerning preoperative smoking cessation: a questionnaire study\*

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### Abstract

**Background:** The purpose of this study was to evaluate the attitudes and behavior of surgeons regarding preoperative smoking cessation.

**Methods:** A total of 109 anonymous questionnaires were distributed to non-vascular surgeons in our hospital, inquiring about their smoking attitudes, their smoking cessation advice practices, whether they appreciated the benefits of preoperative smoking cessation, and their knowledge of smoking cessation methods.

**Results:** Eighty questionnaires (from 51 resident doctors and 29 academic staff) were returned (response rate: 73.40%). Of the surgeons, 17.50% were current smokers. Although 40% of the surgeons surveyed believed that preoperative smoking cessation reduces postoperative complications, 31.2% of the surgeons (25/63) had given smoking cessation advice at least to 1 patient in the last month. Most of the resident doctors (39.2%) advised smoking cessation within a month; prior to surgery however, the academic staff (27.6%) advised cessation immediately before the operation ( $p=0.038$ ). There was a significant difference between academic staff and resident doctors concerning the method to increase a patient's chance of quitting ( $p=0.045$ ), even among current smokers ( $p=0.049$ ).

**Conclusion:** The surgeons who participated in the questionnaire were aware that smoking cessation improves outcome, but most of them did not appreciate that providing brief advice, referring to cessation services, or prescribing nicotine replacement therapy (NRT) may be of benefit in helping patients to quit. It is necessary to educate surgeons about the scale of the benefit and the efficacy of smoking cessation interventions or to set up systematic frameworks to offer smoking cessation advice to preoperative patients who smoke. Hippokratia 2012; 16 (2): 124-129

**Key words:** preoperative smoking cessation, postoperative complications, surgeons, smoking cessation methods

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Although tobacco smoking remains the leading cause of preventable death in the world<sup>1</sup>, current statistics indicate that it will not be possible to reduce tobacco related-deaths over the next 30 to 50 years, unless tobacco users are encouraged to quit. In this regard, health care professionals have a key role to play by working through the health care system to motivate and advise users to quit<sup>2</sup>. In particular many health care environments, including hospitals, have implemented no-smoking policies. Thus inpatients are ideally placed to receive smoking cessation advice and counseling<sup>3</sup>. However, the benefit of preoperative and long-term postoperative smoking cessation has been shown recently, too<sup>4,5</sup>.

Each year millions of cigarette smokers require surgery and anesthesia, so surgeons can play an important role in tobacco control and prevention of deaths due to cigarette smoking<sup>6</sup>. Two major benefits could result from efforts to help patients quit smoking. Firstly, smoking in-

creases the risk of some postoperative complications, including pulmonary complications, such as atelectasis and pneumonia; cardiovascular complications, such as myocardial ischemia; and wound-related complications, such as infection<sup>7,8</sup>. Even temporary abstinence from smoking may reduce the risk of these complications and improve surgical outcomes<sup>9</sup>. Secondly, a surgical episode may represent a "teachable moment" that encourages smokers to permanently quit, with great benefits to their long-term health. However, little attention has been paid to the role of anesthesiologists and surgeons in addressing tobacco use. Indeed, although many surgical specialists recognize the adverse effects of smoking on both short and long-term outcomes, few are familiar with methods to help their patients quit smoking<sup>9</sup>. Moreover, some may have concerns with specific issues related to perioperative smoking cessation, such as whether it is safe for smokers to quit immediately before surgery or for physi-

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cians to administer nicotine replacement therapy (NRT) in surgical patients. In addition, they can help prevent or minimize smoking-related illnesses, such as lung cancer and cervical cancer by acting as healthy role models, by changing their own smoking behaviors and altering their smoking cessation practices toward patients<sup>6,10</sup>.

Despite the high prevalence of smoking (33.4%) in Turkey<sup>11</sup>, during the past 10 years increasing interest has been shown to smoking cessation (SC), both in terms of education and counseling<sup>12</sup>. So, we aimed to determine surgeons' smoking knowledge and attitudes and to explore whether surgeons are advising their patients regarding smoking cessation and offering interventions.

### Methods

A modified form of the questionnaire handed in Turkish, originally developed from the study of Owen and et al<sup>13</sup> was distributed to 109 surgeons (37 [33,94%] academic staff, and 72 [66,06%] resident doctors) who regularly see surgery patients preoperatively (Figure 1). Vascular surgeons were not included in this study, as smoking is intimately involved in the "pathogenesis of atherosclerosis and affects the results of treatment.

It was a self-administered questionnaire consisted of 16 questions investigating the demographic features and personal smoking behaviors of surgeons; pack years (where one "pack year" is 20 cigarettes smoked/day for one year)<sup>14</sup> and attitudes toward smoking cessation; how often they had given smoking cessation advice, prescribed nicotine replacement therapy (NRT), or referred patients to smoking cessation services in the preceding month (Table 1).

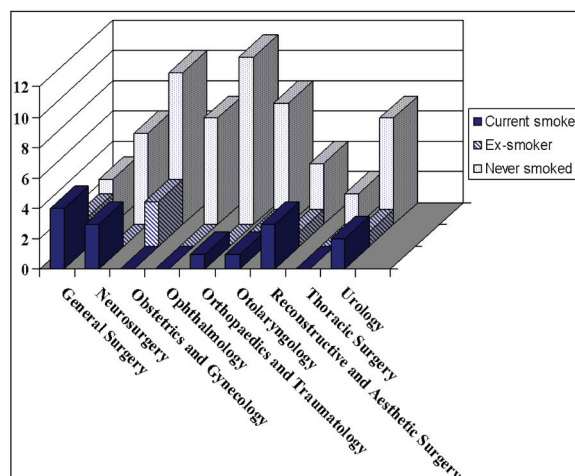
Smoking status was used to classify the participants into three groups: never smoked, ex-smoker (defined as an individual who had stopped smoking at least 1 year prior to the time of the survey), and current smoker<sup>15</sup>.

### Statistical analysis

All data analyses was done using the SPSS for Windows (version 16.0, SPSS, Chicago, II, USA), with the level of significance set at  $p < 0.05$ . The results are expressed as mean  $\pm$  S.E. in this study. The results of the study were evaluated using the factorial design ANOVA. There were two factors in this study: the academic member factor, which consisted of academic staff and resident doctors, and the smoking status of the academic members (smoked or never smoked). Mann-Whitney U tests were used to evaluate the parameters which did not provide the precondition of parametric tests. Differences between the smoking status group and the academic members group were assessed using Pearson's chi-square test.

### Results

A total of 80 non-vascular surgeons ( $34.61 \pm 0.90$  years old) responded to the questionnaire (response rate: 73.40%). Fifty-one ( $29.58 \pm 0.40$  years old) were resident doctors, and 29 of them ( $43.45 \pm 1.12$  years old) were academic staff (Mann-Whitney U,  $p = 0.000$ ).



**Figure 1:** The distribution of the department of surgeons according to their smoking status.

The chi-square analysis indicated that there was not a significant difference in smoking status between academic staff and resident doctors. The current smoking prevalence of the Turkish male surgeons in the study was 17.50% ( $n = 14$ ,  $12.05 \pm 2.03$  pack .years). Five of them (6.25%) were academic staff. Ten of the current smokers admitted that they were considering quitting within 6 months. There were 4 ex-smokers in each group, and 58 participants (72.5%) indicated that they had never smoked (Table 2).

Although 40% of the surgeons believed that preoperative smoking cessation reduced postoperative complications. Only 4 surgeons reported advising cessation within the previous 8 months prior to surgery. Most of the resident doctors (66.7%) had advised smoking cessation within a month prior to surgery however, academic staff (34.78%) advised smoking cessation immediately before the operation (a day before surgery) (Mann-Whitney U  $p = 0.038$ ), (Table 2).

With regard to referral of patients to cigarette cessation outpatient clinics, the academic member/smoking status interaction and the differences between academic member factor means and smoking status factor means were not statistically significant. Only 43.8% of the surgeons indicated that they offered their patients a referral to a smoking cessation outpatient clinic. None of them offered NRT to their patients.

There was a significant difference between academic staff and resident doctors in the methods used to increase a patient's chance of quitting (Mann-Whitney U  $p = 0.045$ ), even in those currently smokers (Mann-Whitney U  $p = 0.049$ ). However this was not supported by non-smoking participants ( $p > 0.05$ ). Most of them (85.7%) indicated that referral to a smoking cessation outpatient clinic enhances a patient's chance of successful cessation. (Table 2).

### Discussion

The main finding of this study was that there was a

**Table 1:** The form of the questionnaire.

S1.Görevli olduğu anabilim dalı Q1.Department		S2.Unvan Q2.Title	S3.Yaş Q3. Age
S4.Cinsiyet Q4.Gender	Erkek Man	Kadın Woman	
S5.Sigara içme durumu Q5. Status of smoking	Sigara içiyor Current smoker		Paket-yıl Pack-years
	Sigarayı bırakmış Ex-smoker		Paket-yıl Pack - years Kaç yıldır içmiyorsunuz? How many years did not smoke?
	Sigara içmiyor Never smoked		
S6.Altı ay içinde sigarayı bırakmayı düşünüyor musunuz? Q6.Are you thinking to quit smoking within six months?	Evet Yes		Hayır No
S7.Hastalarınıza sigara bırakmayı öneriyor musunuz? Q7.Referring patients for cigarette cessation?		Evet Yes	Hayır No
S8.Öneriyorsanız ameliyattan ne kadar süre önce bırakmasını önermektedirsiniz? Q8.If so, how long before the surgery do you recommend to stop smoking?			
S9.Sigara bırakmaları için hastalarınızı sigara bırakma polikliniklerine yönlendiriyor musunuz? Q9.Referring patients for cigarette cessation outpatient clinics?		Evet Yes	Hayır No
S10.Nikotin replasman tedavisi (NRT) reçete ediyor musunuz? Q10.Prescribing any NRT to the patients?		Evet Yes	Hayır No
S11Ameliyat öncesinde sigarayı bırakmak ameliyat sonrasında oluşabilecek komplikasyonları azaltmaktadır Q11Preoperative smoking cessation may reduce postoperative complications		Evet Yes	Hayır No
S12.Son bir ay içerisinde kaç hastanıza sigara bırakmayı önerdiniz? Q12.How many patients did you offer cigarette cessation within the last month?			
S13.Son bir ay içerisinde kaç hastanıza sigara bırakma polikliniğine yönlendirdiniz? Q13.How many patients did you prompt to cigarette cessation outpatient clinic?			
S14.Son bir ay içerisinde kaç hastanıza nikotin replasman tedavisini reçete ettiniz? Q14.How many patients did you prescribe NRT within the last month?			
S15.Ameliyat öncesinde önerilen sigara bırakma tedavisinin operasyon sırasında oluşabilecek komplikasyonları yüzde kaç azalttı? Q15.Giving up smoking before an operation improves outcome. By what percentage is the overall complication rate reduced with preoperative smoking cessation?			
S16.Aşağıdaki önerilerden hangisi hastanın sigara bırakmasını arttıracığını düşünüyorsunuz? Q16.Which if these have been shown to increase a patient's chance of quitting? a- Klinikte yapılan 5 dakikalık tavsiye 5 min of advice in clinic b- NRT tedavisinin tek başına kullanılması NRT alone c- Sigara bırakma polikliğine yönlendirilmesi Referral to smoking cessation advisors			

**Table 2:** the demographic properties of the surgeons and their knowledge about the efficacy of smoking cessation interventions and the benefit of preoperative smoking cessation.

Questions are shown as presented in the questionnaire with positive response from surgeons.	Academic staff N=29 (%)			Resident doctors N=51 (%)			P
Status of smoking	CS N=5(17.24)	Ex-S N=4(13.79)	NnS N=20(68.97)	CS N=9(17.65)	Ex-S N=4(7.84)	NnS N=38(74.51)	<sup>b</sup> NS
Gender							
Man	5	4	20	9	4	29	
Woman	-	-	-	-	-	9	<sup>c</sup> 0.02
Age (years), mean (S.E.)	42.80±1.98	48.75±4.75	42.55±1.19	32.56±1.09	30.50±1.32	28.79±0.44	<sup>c</sup> 0.000
Pack years mean (S.E.)	20.00±5.70	15.33±2.60	-	8.56±1.96	6.00±2.08	-	<sup>b</sup> NS
Q6	4(80)	-	-	6 (66.70)	-	-	<sup>b</sup> NS
Q7	5(100)	4(100)	19(95%)	7 (77.80)	4 (100)	33 (86.80)	<sup>b</sup> NS
Q8							
A day before surgery	1(20)	3(75)	4(20)	2 (22.20)	-	13(34.2)	
7 days before surgery	1(20)	-	-	-	-	-	
15 days before surgery	2(40)	-	1(5)	-	-	-	
30 days before surgery	-	1(25)	4(20)	3(33.30)	2(50)	15(39.50)	<sup>c</sup> 0.038
60 days before surgery	-	-	2(10)	2(22.20)	-	-	
90 days before surgery	1(20)	-	2(10)	-	1(25)	1(2.60)	
180 days before surgery	-	-	1(5)	-	-	-	
Postoperative	-	-	-	-	-	1(2.60)	
Q9	3(60)	3(75)	10(50)	4 (44.4)	1(25)	14(36.80)	<sup>b</sup> NS
Q10	none	none	none	none	none	none	-
Q11	2(40)	2(50)	6(30)	2(22.2)	2(50)	18(47.4)	<sup>b</sup> NS
Q12	22	13	66	19	12	133	<sup>c</sup> NS
Q13	none	1	20	none	2	48	<sup>c</sup> NS
Q14	none	none	none	none	none	none	-
Q15							
10%	-	-	-	-	-	1(2.60)	
15%	-	-	-	-	-	1(2.60)	
20%	-	-	1(5)	-	-	4(2.60)	
25%	-	-	-	-	-	1(2.60)	
30%	-	-	1(5)	1 (11.10)	1 (11.10)	3(7.90)	
40%	-	-	-	-	-	1(2.60)	
50%	-	-	1(5)	-	1 (11.10)	1(2.60)	<sup>c</sup> NS
55%	-	-	-	-	-	1(2.60)	
70%	-	1(25)	1(5)	-	-	3(7.90)	
80%	2(40)	-	-	1(11.10)	-	1(2.60)	
90%	-	-	-	-	-	1(2.60)	
100%	-	1(25)	2(10)	-	-	-	
<sup>a</sup> Q16							
5 min of advice in clinic	1(14.29)	2(40)	4(14.82)	-	1 (25)	7(15.90)	<sup>d</sup> 0.045
NRT alone	2(28.57)	-	3(11.11)	-	-	2(4.55)	<sup>e</sup> 0.049
Referral to smoking cessation advisors	4(57.14)	3(60)	20(74.07)	9 (100)	3(75)	35(79.55)	<sup>f</sup> 0.138

NRT:nicotine replacement therapy. NS: nonspecific. CS: Current smoker, EX-S:Ex-smoker, NnS:Nonsmoker. <sup>a</sup>The answers were given more than once. <sup>b</sup>Pearson's chi-square test.  $p < 0.05$ , <sup>c</sup>Mann-Whitney U  $p < 0.05$  or  $p < 0.01$ . <sup>d</sup>the answers of the participants or <sup>e</sup>only current smokers or <sup>f</sup>only nonsmokers to the question; the methods used to increase a patient's chance of quitting, Mann-Whitney U  $p < 0.05$ .

conflict in the duration of preoperative smoking cessation and the methods employed to increase a patient's chance of quitting between academic staff and resident doctors and also between current smokers and nonsmokers.

Smoking prevalence among Turkish doctors was reported to range between 32.6% and 66.2% in a meta-analysis of 22 studies<sup>16</sup>. The highest percentage of smokers was found among physicians of surgical medicine, and the lowest percentage of smokers was found in the physicians of primary care medicine in our country<sup>17,18</sup>. Contrary to Kaetsu et al<sup>19</sup>, this finding is consistent with the findings of other studies<sup>20</sup>. In our study, 17.50% of surgeons, most of them being resident doctors (11.25%), were current smokers, which is not consistent with the results of other studies<sup>17,18,21</sup>. Ten of the current smokers (71.24%) stated that they would try to quit smoking within 6 months, so these findings reflected that they had the necessary courage and motivation to quit smoking.

It is well-documented that smoking cessation has significant benefits on mortality and morbidity<sup>22</sup>; however, many smokers never consider quitting until a health problem occurs. There is strong evidence that patients concern smoking cessation with certain events. Pregnancy, disease diagnosis, and hospitalization are associated with increased rates of spontaneous smoking cessation compared with the rate in the general population. Among hospitalized patients, it appears that the chances of quitting increase with the intensity of medical interventions<sup>6</sup>. The United States Public Health Service Guideline on Tobacco Use and Dependence states that "all physicians should strongly advise every patient who smokes to quit"<sup>23</sup>. The scheduling of patients for surgery is an appropriate time-point to help reduce the preoperative and postoperative complications of smoking cigarettes and encourage quitting. Among patients scheduled for surgery, those undergoing more extensive interventions (for example, those undergoing inpatient versus outpatient procedures) have a greater likelihood of spontaneously quitting after surgery<sup>24</sup>. Thus, surgery can serve as a teachable moment as defined<sup>25</sup>. Raw et al<sup>26</sup> found that 3 min of advice in a clinic increased a patient's chance of quitting by 2%. More intensive interventions are even more effective, and there is a dose-response relationship between the total time spent in interventions and efficacy<sup>24</sup>.

However, our results demonstrate that surgeons are not using these interventions and they are not aware of their efficacy. Clinical practice guidelines formulated by the United States Public Health Service recommend efficacious techniques for the provision of tobacco interventions by clinicians, codified as the "5 As" approach—ask, advise, assess, assist, and arrange<sup>27</sup>. In this study, although the majority of the participants, especially nonsmoking resident doctors, reported that they advised for smoking cessation, only few performed further efforts, such as referring smoking cessation outpatient clinics (43.8%). This finding is consistent with previous studies on physician delivered smoking cessation interventions in other countries<sup>28,29</sup>. Several barriers to adoption of the

5 As approach by clinicians have been identified, including lack of time, training, and low self-efficacy<sup>30,31</sup>. There is not difference for the academic staff and the resident doctors in our study.

What is unknown in most cases is the minimum duration of preoperative abstinence necessary to confer benefit. Observational studies suggest that at least 2 months of preoperative abstinence is required for full benefit<sup>32,33</sup>. Some researchers have interpreted such observational studies as showing that quitting smoking within a few weeks before surgery actually increases the risk of complications<sup>32</sup>, but other researchers assert the contrary<sup>34</sup>. However, it is important to know the fact that some important adverse effects in pulmonary and cardiovascular system induced by nicotine and CO could be restored within 24 to 48 hours of smoking cessation<sup>35</sup>.

Additionally, all of the participants stated that they never offered NRT to their patients for smoking cessation or managing withdrawal symptoms that do occur. Owen et al<sup>13</sup> reported a similar result in their study. They indicated that most surgeons did not appreciate how much more successful cessation attempts were likely to be if they are augmented with NRT and referral to cessation services. There was a significant difference between academic staff and resident doctors regarding the methods used to increase a patient's chance of quitting, even in current smokers, in our study. Most of them (85.7%) indicated that referral to a smoking cessation outpatient clinic enhances the chance of success. However, this was not supported by nonsmoking participants in our study.

This study has several potential limitations. The primary limitation is whether this sample is representative of Turkish surgeons of an university hospital. Another limitation to the study was that vascular surgeons were not included in this study as smoking is intimately involved in the pathogenesis of atherosclerosis and affects the results of treatment. We assume that this group of surgeons would have significantly different results from the rest of the surgical workforce. Finally, this survey methodology relies on self-report of behavior, which may not reflect actual behavior. It is possible that social desirability may result in bias in our estimates of male surgeons' attitudes and behavior concerning smoking cessation activities.

In conclusion, the surgeons who participated in the questionnaire were aware that smoking cessation improves outcomes, but most of them did not realize that providing brief advice, referring patients to cessation services, or prescribing NRT may be of benefit in helping patients to quit. Further, there was a difference between academic staff and resident doctors in applications to increase a patient's chance of quitting. Although these findings cannot be generalized to all Turkish surgeons, our results show that there are difficulties in integrating smoking cessation treatment into surgical departments. Surgeons, both academic staff and resident doctors, should actively participate in tobacco control training and education to improve their knowledge and attitudes toward smoking. This will lead to improvements in surgeons' own smok-



ing behavior, as well as the frequency with which they inquire about patients' smoking status and encouraging patients to quit smoking. More importantly, interventions should be designed for surgical patients in Turkey, as successful innovations could both improve perioperative outcomes.

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