



Evaluation of the Periodic Examination of Physicians Working in a Training and Research Hospital Regarding Malignancy Risk

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Abstract

Introduction: Employee health was assured by regulation no. 27897 on 6 April 2011, in our country, Turkey. Health workers are periodically examined and controlled according to the risk in their duties. In this study, we aimed to analyze periodic examinations of physicians working in an educational research hospital and determine the findings that may pose a risk for malignant diseases.

Methods: Periodic health examination (PHE) files of 227 physicians working in Haydarpaşa Numune Training and Research Hospital between 01.06.2018-31.12.2018 were examined in this study.

Results: The files of 227 physicians who gave consent for the periodic examination were studied. Of the 221 physicians whose data were complete, 125 were female (56.6%), and 96 were male (43.4%). When smoking was questioned regarding the etiology of malignancy, the number of physicians smoking was 32 (14.1%), and no statistically significant difference was found between the genders. When another risk factor obesity rates were examined, 20.7% were overweighted (n: 47), 3.5% were obese (n: 8), and 0.4% were morbidly obese (n: 1). Male physicians were more likely to be overweighted or obese, and the difference was statistically significant compared to women. The rates of other findings that may be risk factors were much lower.

Discussion and Conclusion: When PHE files are analyzed regarding risk factors that may be involved in the etiology of malignancy in the literature, it is concluded that physicians have positive results according to the data of the world and our country.

Keywords: Employee health; periodic examination; malignant diseases; malignancy risk assessment.

Reduction of infections and prolongation of life all over the world, especially in developed and developing countries, have led to changes in the prevalence of chronic diseases and causes of mortality, especially in the course of the last fifty years. When we look at the causes of mortal-

ity in recent years, it is seen that infectious diseases have ranked lower in the list, whereas chronic causes, such as COPD and malignancy, have increased to the upper ranks. Respiratory cancers, which were the 9th most common cause of death in 2000, progressed to the 6th place in 2016,

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after 16 years [1]. Again in 2018, the number of cancers in the world, which was 18.1 million, is estimated to increase to 29.5 million by 2040 [2]. In our country, cancers are the second most common cause of death (19.7%), all the respiratory cancers ranking first (30.8%) among malignancies, followed by lymphoid and hematopoietic, stomach, colon and pancreas cancers, respectively [3].

When we look at the etiology of all cancers in general, smoking, alcohol, unhealthy nutrition, polluted air and other toxins, genetic factors, some infections, obesity, sedentary life and sunlight exposure factors seem to be predominant [4]. Employees of each profession may carry some risks for certain malignancies due to their personal characteristics as well as their exposure to work life.

Article 7 of the "Regulation on Ensuring Patient and Employee Safety", dated 6th of April 2011 and no. 27897, includes occupational health and safety practices of health workers duties of health institutions, in our country [5].

Routine health screening in hospitals is carried out annually and for employees working in risky units, it is carried out every six months. The routine screening includes personal history, family history, anthropometric data (height, weight), medical history, questioning harmful habits and routine physical examination, eye examination, PPD and audiometry test. Routine laboratory tests include infectious disease screening, complete blood count and kidney and liver function tests. Imaging methods include electrocardiography with PA chest X-ray. People who work in risky units are asked for additional examinations specific to the risk factor for the unit they work.

Medicine is a profession that requires serving devotedly with long working hours and workload. With a paternalistic approach since Hippocrates, it is seen that the physician who takes care of a patient's health puts the health care and check-ups about him in the background [6]. When we look at the literature on the health of a physician, it is seen that issues, such as burnout, sleeping problems and violence directed to physicians come up, but the data in the literature are limited [7-9]. To our knowledge, no study was encountered on the characteristics of the physicians that might carry malignancy risk. In our study, we planned the frequency and analysis of the factors that may carry the risk of malignancy in the data of the physicians whose periodic health screening took place in the hospitals.

Materials and Methods

Our research is cross-sectional and single-centered and includes the physicians working at the Haydarpaşa Nu-

me Training and Research Hospital of Health Sciences University in 2018. For this study, the files of a total of 227 physicians who actively served in the hospital between 01.06.2018-31.12.2018 and had periodic health screening were considered. An analysis of the physicians whose risk factors were only present in the data file and may be included in the etiology of malignancy, such as medical history and family history, demographic and anthropometric data, physical examination findings, PA chest x-ray and for risk groups additional tests, such as thyroid ultrasonography (USG), peripheral smear and pulmonary function test (PFT) is planned.

Before this study, the administrative permission of Haydarpaşa Numune Training and Research Hospital, dated 17.09.2018, was obtained and the working process was carried out in accordance with the Helsinki Declaration.

The data were evaluated in the IBM SPSS 22.0 package program and frequency, descriptive analysis, chi-square and regression analysis were used to analyze the data, and $p < 0.05$ was considered statistically significant.

Results

It was observed that the physicians working in the hospital and participating in the periodic examination were 56.6% female (n: 125), 43.4% male (n: 96), and the average age was 35.20 ± 10.03 (Table 1).

It was determined that physicians were 58.6% post-graduates (general practitioner or residents, n: 133) and 39.2% were senior physicians (n: 89). When the marital status was examined, it was seen that 41.1% of men were single (n: 39), 58.9% were married (n: 56), and female physicians were 45.6% single and 54.4% were married (n: 68) and statistically no significant difference was detected ($p > 0.05$).

When the medical backgrounds of the physicians were examined, the number of active smokers was 32 (14.1%) and the number of physicians who quit smoking was 16 (7%). The smoking rate was 13% (n: 16) in females and 17% (n: 16) in males and no statistically significant difference was found between genders ($p > 0.05$) (Table 2). For family history, the rate of physicians with cancer in their family was 6.2% (n: 14), and 73.1% without cancer. Forty-six physicians did not answer this question.

When physician's body mass index (BMI) was analyzed, 2.6% were thin (n: 6), 44.9% normal (n: 102), 20.7% overweight (n: 47), 3.5% obese (n: 8) and 0.4% morbid obese (n: 1). Male physicians had statistically more fat, and the difference from female physicians was considered statistically significant ($p = 0.00$). When the physicians were grouped

Table 1. Range of the age of physicians by sex

	Age Range of the Individuals											
	23-30		31-40		41-50		51-60		61-70		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Sex												
Male	45	46.9	23	24.0	17	17.7	6	6.2	5	5.2	96	100
Female	67	53.6	24	19.2	26	20.8	7	5.6	1	0.8	125	100
Total	112	50.7	47	21.3	43	19.5	13	5.9	6	2.7	221	100

Table 2. Smoking status of the physicians by sex

	Smoking Status						Total	
	Smoking		Non-Smoking		Quitted Smoking		n	%
	n	%	n	%	n	%	n	%
Sex								
Male	16	17	71	76	7	7	94	100
Female	16	13	98	80	9	7	123	100
Total	32	15	169	78	16	7	217	

$\chi^2=0.701$; SD:2; $p=0.704$.

according to their age, BMI and age had no statistically significant difference ($p>0.05$).

When the PA chest x-rays of physicians were examined, only one radiograph had a "chronic disease sequence", while others were within the physiological limit.

According to the regulation, physicians who need PFT were pathologists, medical oncologists and dentists [5]. In the hospital, PFT is performed to the anesthesiology and reanimation clinic physicians, and the dentistry clinic is not available.

It was observed that 76 people out of 81 people who underwent PFT test had normal (88.4%), three people had obstructive (3.5%) and two people (2.3%) had obstructive + restrictive respiratory function. Also, 13 of the physicians (15.1%) in the risk group who were PFT actively smoked, 60 physicians (69.8%) did not smoke, six people (7%) quit smoking and seven people did not answer the question. When the effects of the independent variable of smoking on PFT results' dependent variable were analyzed, smoking was shown to affect PFT results by 6%. The effects of smoking on pathological findings in PFT are considered statistically significant ($p<0.05$).

Thyroid USG is carried out for physicians exposed to radiation due to their branches. In the results of USG performed in 20 physicians showed normal results in 13 (5.7%) physicians, nodules in five (2.2%) physicians and other pathologies in two (8.8%) physicians. The biopsy result of a

physician with a malignant nodule was malignant and was referred to the relevant branch.

Peripheral smear (PS) is also performed in physicians working in the branches exposed to radiation, and no pathological finding was found in two physicians with PS results. The last two findings were not statistically evaluated due to the lack of data.

Discussion

In our study, the medical characteristics of physicians, who perform health care duties with great devotion and who are exposed to certain risks at the same time, were analyzed for the risk of cancer. The scope of this analysis is the information obtained in the periodic health examination performed at the Haydarpaşa Numune Training and Research Hospital (TRH). The results, which were accepted as the risk of malignancy, based on the curriculum vitae and physical examination present in the periodic examination files of the physicians, were evaluated.

When the smoking status in the etiology of many malignant diseases, especially respiratory tract cancers, was analyzed, it was observed that the rate of smoking in hospital physicians was 14.1% (M: 17%, F: 13%) In our country, smoking rates in 2016 were 26.5% in total, 40.1% in males and 13.3% in females [10]. In general, sex-based smoking rates of hospital physicians were lower than the average of our country, whereas female physicians were similar to the average of our country. Smoking rates among physi-

cians in our country have a wide range (min. 18.7% -max. 66.2%) [11, 12]. It was observed that the general average of actively smoking in hospital physicians was much lower. When we look at the frequency of smoking physicians in the world, a recent study showed 7.8% of the physicians in Poland [13]. The rates were detected as follows: 3% in Nigeria, 5.3% in Egypt, 42% in Canada, 37% in Pakistan and 38.6% in Greece [14–18]. It is seen that the frequency of actively smoking amongst hospital physicians is lower than the averages of our country, and when compared to the rate of smoking of physicians in other countries, it ranks lower.

When high BMI values, which are risk factors for some malignant diseases, are examined for our study, 20.7% overweight and 3.9% obesity rate among physicians were observed. The prevalence of adult obesity in our country, Turkey, was determined to be 29.5% (female 35%, male 23.9%) [19]. According to our study, the obesity rate was much lower in physicians, and unlike our country, the obesity rate was lower in female physicians than in male physicians. Studies on the physicians' BMI values are rare to come across in the literature [19]. A study conducted in the United States (USA) revealed that the rate of overweight was 38%, and the rate of obesity was 15% in physicians. Taking into consideration the general obesity rate of the US population, this result is not surprising, and our study showed lower rates of obesity [20]. However, the results of a recent study have more positive outcomes for the physicians in the US (29.3% overweight and 9.1% obese) [21]. In a very recent study conducted in the United Arab Emirates (UAE) revealed that the rate of overweight among physicians was 37% and the rate of obesity was 12% [22]. The rates determined in our study were found to be much lower. A study looking at the obesity status of resident physicians in our country found that 23.3% were overweight and 4.7% were obese [23]. In our study, the obesity rate of the resident physicians could not be measured with their PST files because they were classified as only graduate or doctorate graduates, but even so, compared to this study, the obesity rate in our study was low. In a study conducted in Afyon, the obesity rate in physicians was 7.9% [24]. This result includes a higher obesity rate than our study.

When the PA chest x-rays available, and useful in the case of a risk of malignancy, in PST files were examined, a "chronic disease sequence" was detected in a radiograph, thyroid USG results and PY findings were also determined to be in a size that could not be evaluated numerically and statistically.

Conclusion

The profession of medicine is based on devotion and self-sacrifice. Hospitals are considered to have a high risk for occupational health and safety; it is of a great importance that physicians who are responsible for providing the necessary healing process for their patients have routine periodic examinations concerning their own health. Some information and examinations requested during the periodic examination also include risk indicators for malignant diseases. In the analyzes conducted in Haydarpaşa Numune TRH, the prevalence of smoking and obesity, which are the risk factors for malignant diseases, was found to be much lower than the rates of our country. The risk was determined to be much lower in AC radiography, thyroid USG and PY analysis evaluated in the health screenings. The results are considered to have a positive effect on our national data. Broader research on this subject may change the perspective of healthcare professionals on changeable factors in cancer development, and it will enable taking easier steps to reduce environmental triggers.

Ethics Committee Approval: Before this study, the administrative permission of Haydarpaşa Numune Training and Research Hospital, dated 17.09.2018, was obtained.

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