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Three-year' experience of a tertiary level occupational diseases clinic

Arif ÇİMRİN¹(ID)
Yücel DEMİRAL²(ID)
Nur Şafak ALICI³(ID)
Ayşe COŞKUN BEYAN⁴(ID)

¹ Department of Chest Diseases, Faculty of Medicine, Dokuz Eylül University, İzmir, Turkey

¹ Dokuz Eylül Üniversitesi Tıp Fakültesi, Göğüs Hastalıkları Anabilim Dalı, İzmir, Türkiye

² Department of Public Health, Faculty of Medicine, Dokuz Eylül University, İzmir, Turkey

² Dokuz Eylül Üniversitesi Tıp Fakültesi, Halk Sağlığı Anabilim Dalı, İzmir, Türkiye

³ Clinic of Occupational Diseases, İzmir Dr. Suat Seren Chest Diseases and Surgery Training and Research Hospital, İzmir, Turkey

³ İzmir Dr. Suat Seren Göğüs Hastalıkları ve Cerrahisi Eğitim ve Araştırma Hastanesi, Meslek Hastalıkları Kliniği, İzmir, Türkiye

⁴ Department of Occupational Diseases, Faculty of Medicine, Dokuz Eylül University, İzmir, Turkey

⁴ Dokuz Eylül Üniversitesi Tıp Fakültesi, Meslek Hastalıkları Anabilim Dalı, İzmir, Türkiye

ABSTRACT

Three-year' experience of a tertiary level occupational diseases clinic

Introduction: We aimed to evaluate the diagnosis of patients who applied on the first three years of our clinic, in order to contribute to the state of occupational diseases (OD) in Turkey.

Materials and Methods: The study is a cross-sectional study, between November 2013 and December 2016, 862 subjects were accepted for the evaluation. Gender, age, application ways, the reason of referral, workplace, exposure time and possible risks for the patients were evaluated through a file examination.

Results: Total of 708 (82.1%) was male and 154 (17.9%) were female. The mean age of the subjects was 38.3 ± 7.7 years; the mean term of employment was 126.6 ± 87.3 (1-420) months. The most common cause of referral was the suspicion of occupational pulmonary diseases (64.3%) with 554 workers. 435 workers (50,6%) were diagnosed to have an OD, 78 workers (9.0%) were diagnosed with work-related diseases. The most common diagnoses of OD; 169 (38.9%) pneumoconiosis, 71 (16.3%) occupational asthma, 38 (8.7%) cervical disc hernia, 24 (5.5%) lumbar disc hernia, 24 (5.5%) hearing loss, 19 (4.3%) cubital/carpal tunnel, and 15 (3.4%) workers have lead intoxication.

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Yazışma Adresi (Address for Correspondence)

Dr. Nur Şafak ALICI
İzmir Dr. Suat Seren Göğüs Hastalıkları ve Cerrahisi Eğitim ve Araştırma Hastanesi, Meslek Hastalıkları Kliniği, İZMİR - TÜRKİYE
e-mail: safak.alici@hotmail.com

Conclusion: *Dust, chemicals, ergonomic risks and noise still remain as important occupational health risks in Turkey. It is seen that the existing occupational diseases monitoring system is inadequate to identify and manage the health problems of the workers. An effective and comprehensive occupational disease monitoring system should be established and legal regulations should be planned.*

Key words: *Pneumoconiosis; occupational diseases; occupational pulmonary diseases; occupational asthma*

ÖZ

Üç yıllık meslek hastalıkları kliniği deneyimi

Giriş: *Türkiye'deki meslek hastalıklarının durumuna katkıda bulunmak amacı ile kliniğimizin ilk üç yılında başvuran hastaların tanıların değerlendirilmesi amaçlanmıştır.*

Materyal ve Metod: *Çalışma kesitsel bir çalışmadır. Kasım 2013-Aralık 2016 tarihleri arasında başvuran 862 olgunun tamamı çalışmaya alınmıştır. Olguların cinsiyet, yaş, başvuru şekilleri, sevk eden kurumlar, sevk nedeni, çalıştığı işyeri, maruz kalım süresi, maruz kaldıkları olası riskler ve son tanıları değerlendirilmiştir.*

Bulgular: *Toplam 862 olgu çalışmaya alındı. Bu olgulardan 708 (%82.1)'i erkek, 154 (%17.9)'ü kadındı. Olguların yaş ortalaması 38.3 ± 7.7 yıl idi. Çalışma süreleri ortalama 126.6 ± 87.3 (1-420) aydı. En sık başvuru nedeni, 554 (%64.3) olgu ile mesleki solunum sistemi hastalığı şüphesi idi. 435 (%50.6) olgu meslek hastalığı, 78 (%9.0) olgu işin şiddetlendirdiği hastalık tanısı konuldu. En sık tanı konulan meslek hastalıkları; 169 (%38.9) olgu pnömokonyoz, 71 (%16.3) olgu mesleki astım, 38 (%8.7) olgu servikal disk hernisi, 24 (%5.5) olgu lomber disk hernisi, 24 (%5.5) olgu işitme kaybı, 19 (%4.3) olgu kubital/karpal tünel, 15 (%3.4) olgu kurşun intoksikasyonu tanılarıyla.*

Sonuç: *Toz, kimyasallar, ergonomik riskler ve gürültü, Türkiye'de hala önemli iş sağlığı riski olarak kalmaktadır. Mevcut meslek hastalıkları izleme sisteminin, çalışanların sağlık sorunlarını tanımlamak ve yönetmek için yetersiz olduğu görülmektedir. Etkili ve kapsamlı bir mesleki hastalık izleme sistemi kurulmalı ve yasal düzenlemeler planlanmalıdır.*

Anahtar kelimeler: *Pnömokonyoz; meslek hastalıkları; mesleki akciğer hastalıkları; mesleki astım*

INTRODUCTION

One of the important parameters indicating the status of the occupational health profile in a country is the number of occupational diseases (OD) registered in the country. Prevention is key since it not only protects the lives and livelihoods of workers and their families but also contributes to ensuring economic, ethical and social development. The collection, recording and notification of data on OD are crucial for development of prevention strategies and set the priorities. It is also important to analyze and study their causes in order to develop preventive measures (1). Reported disease statistics are often incomplete, since under-reporting is common, and official reporting requirements frequently do not cover all categories of workers in the world (2).

In Turkey, according to the Occupational Safety and Health Law (No 6331, 2012), the employer have to keep a list of occupational diseases and shall notify the Social Security Institution. Occupational physicians or health care providers shall refer workers with pre-diagnosis of occupational diseases to health care providers authorized by the Social Security Institution. These authorized health care providers shall notify the Social Security Institution within 10 days when diagnosis of occupational disease is confirmed. According

to Law, the occupational physician (OP) and occupational safety specialist are responsible for conducting health and safety services on behalf of the employer in the workplace. Any physician working at a health care provider organization (occupational physician, primary care physician, hospital physician, etc.) can report the case to the Social Security Institution via the authorized hospitals. Even a person (working or retired) can directly apply to the Institution with the claim of an occupational disease. This application is conveyed to one of the authorized hospitals for evaluation. The compensation issues are the right and responsibility of the Social Security Institution.

The Ministry of Family, Labor and Social Services is the main responsible organization in occupational health field, in collaboration with other ministries and stakeholders, and is responsible for developing, implementing and enforcing legislation. According to Law 6631: Providing occupational safety and health services is the responsibility of the employer. According to the Turkish statistical institute, Turkey's working age population of 15-65 years in 2016 was 58 million of those 27 million are employed (3). 19.0% were employed in agriculture, 19.6% in industry, 7.1% in construction and 54.4% in the service sector (4). As of August 2016, the number of compulsory insured

(under the Article 4-1/of Law no. 5510) population was reported as 15.5 million (5). It was reported that 2.1% (about 500.000 people) of the employed or those who have worked in the past had a reported work-related health problem in the past 12 months. When the distribution of these problems were considered, musculoskeletal problems were 53.2%; stress, depression or anxiety problems were 20.0%; respiratory or lung problems were 5.8%; skin problems were 2.1%; hearing problems were 1.0%; a headache or eye fatigue was 3.9%; problems related to the heart related or circulatory system were 2.7%; infectious disease (viruses, bacteria or other types of infections) 1.0%; gastrointestinal problems related to liver, kidney or digestive tract were 3.5%, and other complaints were 2.7% (6).

Given the fact that the incidence of occupational diseases in working population ranges between 4 and 12 per thousand according to the estimation of International Labour Organization (ILO), it can be expected that 100.000 to 300.000 workers suffer from an occupational disease annually in Turkey. National Occupational Health and Safety Policy Document covering the period between 2009 and 2013 indicates that the occupational diseases could not be recognized (7,8).

There is no statistical data published by the Ministry of Health about ODs in our country. The SSI does not reflect the cases outside the cases which are entitled to compensation by evaluating them in their authorized boards to ODs statistics.

By the reason of the limitations on the diagnosis of ODs in our country, the Ministry of Health defined the field of specialization of ODs in 2014. 12 sub-branch specialists have graduated so far. Occupational diseases applications are evaluated by a total of 10 institutions (9). Our unit is the first tertiary institution that evaluates patients referred by a physicians or SSI for diagnosis of occupational diseases. Three of ten hospitals are Occupational Disease Hospital which established in 1970s. 3388 of a total of 6,792 cases were diagnosed with ODs in 2008 in the three ODs hospital. In 2011, a total of 12.000 people applied to the ODs hospitals (10).

This research aims to share three years' experience as a tertiary hospital authorized to diagnose OD and to provide information on the occupational diseases diagnosis and notification system in Turkey.

MATERIALS and METHODS

The study is a cross-sectional study. All of the 862 cases referred between November 2013, and December 2016 were evaluated. The cases were assessed by gender, age, the application form, referring institutions, referral cause, workplace, exposure duration and possible risks of exposure via file examinations.

Diseases in which a cause-effect, effect-response relationship could be demonstrated between a harmful agent and the affected human body in the job being done were defined as "occupational diseases"; even though many causal factors and other risk factors present in the workplace play a role together, even if they do not originate directly from the workplace, the diseases that were affected by the factors in the workplace and whose conditions changed were defined as "the disease exacerbated by the work" (11). The diagnosis of the occupational disease was done by ILO criteria's (2) .

The data obtained were presented as frequency and percentage distributions. PASW Statistics for Windows Package Statistical Program (SPSS Inc. Version 18.0, Chicago, USA) was used to evaluate the data.

RESULTS

There were a 862 patients of those 708 (82.1%) were male, and 154 (17.9%) were female during the study period. The mean age of the cases was 38.3 ± 7.7 ; the youngest was 21, and the eldest was 76 years old. The mean duration of work was 126.6 ± 87.3 (1-420) months. Two hundred and fifty patients (29%) never smoked, 362 (42%) were smoking and 249 (28.8%) patients quit smoking. Average package year was 10.5 ± 10.5 (0-60).

Table 1 summarizes the jobs and sectors of the cases. The majority of the sectors were mining, ceramics, metal, dental technician, machinery, furniture, chemistry, textile-leather, electrical-electronics, service and health sectors. Cases classified as "others" in Table 1 were the lines of work such as animator, health technician, bakery worker, and archivist. According to the work and exposure history of the cases, they were found to be exposed to many risk factors. The most common exposures were; the dust/metal dust-smoke 399 (46.3%), ergonomic 214 (24.8%), chemical 195 (22.6%) and noise 26 (3.0%) (Table 2).

Table 1. The sectors and the work done by the cases

Sector	Work	n (%)
Mine-Marble	Coal and metal ore mining	26 (3.0%)
	Stone crusher operator	16 (1.9%)
	Marble-Cimstone cutting	10 (1.1%)
Ceramic	Ceramic/vitreous worker	144 (16.7%)
Metal	Molding	30 (3.5%)
	Welding	48 (5.6%)
	Metal grinding-sanding	16 (1.8%)
	Lathe leveling/CNC	11 (1.2%)
	Rolling mill	3 (0.3%)
Dental technician	Dental technician	75 (8.7%)
Sandblasting	Jeans/metal/glass sanding	20 (2.3%)
Machinery	Mechanical maintenance	21 (2.4%)
	Printing press	9 (1.04%)
Furniture	Furniture manufacturing, painting and polishing	16 (1.8%)
Chemistry	Manufacture of chemical products	20 (2.3%)
	Lead/nickel worker	10 (1.1%)
	Plastic injection/cutting operator	23 (2.6%)
	Painting (auto/furniture/metal)	33 (3.8%)
	Textile product cutting-sewing	27 (3.1%)
Textile, Leather	Leather tanning-cutting-gluing	7 (0.8%)
	Electronic assembly worker	88 (10.2%)
Electric-electronic	Call center operator	11 (1.3%)
	Cleaning	33 (3.8%)
	Warehouse transport worker-porter	32 (3.71%)
Service	Nurse	17 (2.0%)
	Laboratory staff	8 (0.9%)
Healthcare workers		
Other		108 (12.5%)
Total		862 (100%)

Distribution of the cases according to the referring institutions were as follows; 328 cases (38.1%) were referred from SSI, 282 cases (32.7%) from occupational physicians, 248 cases (28.8%) from the specialist physicians of the secondary and tertiary care state hospitals and 4 cases (0.5%) from Labor Court. The most common reason for referral was the suspicion of an occupational respiratory disease. A total of 36 cases (4.2%) with 13 pneumoconiosis (36.1%) were referred second time for clinical control (Table 3).

Eight hundred and eleven (94.1%) case evaluations were completed. The remaining 51 (5.9%) cases were under evaluation. No disease or occupational

relationship were detected in 224 (25%) of the completed cases. 435 cases diagnosed as occupational diseases and 78 cases diagnosed as the disease exacerbated by the work. Communication was interrupted with 74 cases. So we couldn't evaluate them. The most common OD diagnoses were; pneumoconiosis (n= 169, 38.9%), occupational asthma (n= 71, 6.3%), cervical disc hernia (n= 38, 8.7%), lumbar disc hernia (n= 24, 5.5%), hearing loss (n= 24, 5.5%), cubital/carpal tunnel syndrome (n= 19, 4.3%) and lead intoxication (n= 15, 3.4%) (Table 4).

Distribution of the cases, when assessed according to ILO classification of occupational diseases, was as

Table 2. The main risks factors

Risk	n (%)
Dust	323 (37.5)
Ergonomic	214 (24.8)
Chemical	195 (22.6)
Metal dust/smoke	76 (8.8)
Noise	26 (3.0)
Biologic/allergen	18 (2.1)
Psychosocial	6 (0.6)
Non-ionizing radiation	3 (0.3)
Other physical (cold)	1 (0.1)
Total	862

Table 3. Referral reasons of cases

Referral reason	n (%)
Respiratory system disease	554 (64.3)
Musculoskeletal system disease	197 (22.9)
Dermatologic disease	28 (3.2)
Otolaryngologic disease	29 (3.4)
Toxic effect (lead, solvent)	26 (3.0)
Neurological disease	7 (0.8)
Other	21 (2.4)
Total	862

Table 4. Distribution of occupational disease diagnoses

System	Disease	N= 435	%	System	Disease	N= 435	%
Respiratory system	Pneumoconiosis/welder lung	169	38.9	Dermatology	Allergic CD	11	2.5
	Occupational asthma	71	16.3		Irritant CD	3	0.7
	COPD/Chronic bronchitis	7	1.6	Otolaryngology	Hearing loss	24	5.5
	Pleural/mediastinal pathology	4	0.9	Systemic intoxications	Lead intoxic	15	3.4
	RADS/DAH/DIP/Metal fume fever/chemical pneumonitis	13	2.9		Glycoasetate intoxic	2	0.5
	Tuberculosis	1	0.2	Neurologic	Perchloroethylene	1	0.2
Musculoskeletal system	Cervical disc herniation (CDH)	38	8.7		Polyneuropathy	3	0.7
	Lumbar disc herniation (LDH)	24	5.5	Psychiatric	Algoneurodystrophy	1	0.2
	Carpal/cubital tunnel	19	4.3	Hematologic	MDS	1	0.2
	Epicondylitis/tendonitis/menisopathy/other	12	1.8	Hepatic system	Toxic hepatitis	1	0.2
	Thoracic disc herniation (TDH)	2	0.5	Other (eye, genitourinary, rheumatology...)		13	1.8

following; 262 cases (30.4%) had respiratory system diseases, 10 cases (12.8%) musculoskeletal system diseases, 23 cases (2.7%) diseases related to chemicals, 22 (2.6%) diseases related to physical conditions and 14 (1.6%) cases skin diseases.

Distribution of the cases according to the OD list used in Turkey was as following; 262 cases (30.4%) had pneumoconiosis and other respiratory system

diseases, 132 cases (15.3%) OD related to physical conditions, 23 cases (2.7%) OD related to chemicals, 14 cases (1.6%) occupational skin diseases and 1 case (0.1%) occupational infectious disease.

DISCUSSION

Our data emphasize that the generalization of the similar units could be a significant development in overcoming the limitations associated with the surveil-

lance of ODs in Turkey, and the health organization associated with OHS. According to the reported figures, 435 (50.4%) out of 862 referred cases were diagnosed as OD in our outpatient clinic. Occupational diseases hospitals were diagnosed with occupational diseases at a similar rate (40-60%) to our clinic. On the other hand, the cases that applied to our clinic only represent the registered employees. There is a high unregistered employment rate (30-40%) in our country, also it is important that workers in small-scale workplaces employing less than 50 employees, whose OHS services are inadequate, might be excluded from adequate OHS practices (12). But, the figures published by the SSI on the same dates are around 500 (13). This major gap suggests that there are significant problems with the diagnosis and notification of ODs.

When the distribution of the diagnoses of our cases evaluated, leading known ODs (pneumoconiosis, asthma, musculoskeletal system problems, dermatitis and hearing loss related to noise) were observed. The distribution of ODs in our cases shows that the classical occupational risks which consist of dust, noise, ergonomic risk and chemicals in our country are still not fully controlled and that cases with psychosocial problems cannot be detected in the workplace. ILO also highlighted pneumoconiosis epidemic. China reported a total of 27.240 cases of occupational diseases, including 23.812 caused by exposure to workplace dusts in 2010 (14). In the same year, 22.013 cases of occupational diseases were reported in Argentina, with musculoskeletal disorders (MSDs) and respiratory diseases among the most frequent diseases. Japan reported a total of 7779 cases of occupational diseases mainly related to low-back disorders and pneumoconiosis. The distribution by diagnosis differs from the ODs associated with leading psychosocial and musculoskeletal systems in industrialized countries (1). In our country, it is seen that there is a problem about the diagnosis of psychosocial and ergonomics risks. ILO screening for dusty workplaces is considered to be the most important factor in the high rate of pneumoconiosis diagnosis.

In Turkey, there is no OD surveillance system fitting the recommendations of the ILO based on protection and prevention. According to ILO, the primary target of an OD registration and notification system should be to use them in implementing preventive measures for OD. In Turkey, occupational diseases data only kept on insurance records. It is not reflecting the

actual number of occupational diseases so there is no development for protection measures.

In their study by Spreeuwers et al. comparing the occupational diseases registration and notification systems in 6 EU countries, Austria, Belgium and France, which only collect data for the provision of insurance services, stated that preventive services are insufficient in occupational health services. They stated that recording, monitoring and preventive activities are better provided in the registration systems for the planning of preventive activities such as Finland and England and for scientific research (15). Tang et al analyzed OD reporting system benefits and find out very striking results in their study. According to authors: the benefit of occupational disease reporting system depends on the cost-benefit of occupational disease prevention and control measures. The results of the decision tree analysis showed that when an occupational disease monitoring system was established, the incremental input for occupational disease monitoring and prevention/control was 2.1 billion yuan/year, the output was 6.5 billion yuan/year, and the benefit of occupational disease reporting system was 4.4 billion yuan/year (16).

Another important effect of the absence of OD monitoring system was on job security. Because of the social and economic aspects the workers diagnosed OD are not only encounter with medical problems but also social, economic, legal and psychological problems during the process of the diagnosis, treatment, and returning to work. Issues related to the job security such as workplace pressure, fear of being fired from work seem to be important. In our clinic, 33.3% of patients with the diagnosis of pneumoconiosis dismissed or left their jobs either while the evaluation process was in progress or after the diagnosis was made. We have found that 4.4% of these cases were dismissed/left their jobs immediately after the application to our clinic (17,18). Policies and regulations should account for the risk of unemployment after OD diagnosis. OD surveillance systems should obtain data on the employment status of the workers after diagnoses, and reports in the workplace should be intended to monitor worker health and well-being.

As a general, chemicals, ergonomic risks and noise still remain as important occupational health risks in Turkey. This alone is an indication of the inadequacy of OHS implementations in workplaces as well as the

presence of dirty industries. Training studies that enhance the competencies of workplace physicians seem important. Generalization of OHS centers similar to our clinic as well as ODs hospitals will strengthen the effectiveness of OHS activities in the workplace.

There are some limitations in our research. All data of the authorized centers for the diagnosis of occupational disease in Turkey is unknown. Therefore, no comment could be made about the diagnosis of occupational diseases in other centers. Our center is a referral center which workers from Aegean region referred. So our results could be affected from the regional workplace properties. Regional differences may not reflect Turkey's profile.

In conclusion, to define and manage the health problems of employees is essential to activate health surveillance in workplaces and to establish the legal infrastructure. First of all, different institutions in health system have a role and responsibility in Turkey. Priority should be given to the establishment of a national, autonomous occupational health institution for the revision of the occupational health system and the planning of policies and the provision of services as a whole.

CONFLICT of INTEREST

There is no conflict of interest related to this study.

AUTHORSHIP CONTRIBUTIONS

Concept/Design: All of authors.

Analysis/Interpretation: All of authors.

Data Acquisition: All of authors.

Written by: All of authors.

Critical Revision: All of authors.

Final Approval: All of authors.

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