SCIE DOI: 10.14744/scie.2020.39206
South. Clin. Ist. Euras. 2020;31(3):243-250

Original Article

Evaluation of Hepatitis A, Hepatitis B, Hepatitis C, HIV, Mumps, Measles and Chickenpox Seroprevalence in Healthcare Workers

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Submitted: 06.09.2019
Accepted: 31.01.2020

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Keywords: Health care workers; hospital; seroprevalence; vaccine preventable diseases.

ABSTRACT

Objective: The aim of this study was to investigate the seroprevalence of Hepatitis A, Hepatitis B, Hepatitis C, HIV, Mumps, Measles and Chickenpox for all staff and trainee students working under SBU Fatih Sultan Mehmet EAH in 2018.

Methods: A total of 1674 medical staff and trainee students' serum samples were screened retrospectively for Hepatitis A, Hepatitis B, Hepatitis C, HIV, Mumps, Measles and Chickenpox. The findings were analyzed by using IBM SPSS Statistics 22 (IBM SPSS, Turkey) program. Descriptive statistical methods, Chi Square and Fisher Freeman Halton tests were used in order to analyze of the data.

Results: A total of 1674 people, 636 (38%) males and 1038 (62%) females were included in the study. Of these, 502 (30%) were internships in the health school. When examined in terms of total staff; AntiHBs (86%), Mumps IgG (97%), Measles IgG (94%) and VZV IgG (97%) were found to be highly positive. There were no health workers who were positive for anti HIV and measles IgM. There were 4 anti-HCV positive, 2 mumps IgM positive and 1 VZV IgM positive people.

Conclusion: It is important to take preventive measures against vaccination preventable diseases and immunization of the personnel working in hospitals. The results obtained in our study were found to be consistent with similar studies conducted in our country.

INTRODUCTION

Employees in healthcare institutions are faced with different dangers and risks, which are grouped as biological, physical, ergonomic, chemical and psychosocial. Biological hazards are diseases caused by pathogens transmitted as a result of contact with the blood of patients or body fluids contaminated with blood.[1] Especially blood, body fluids contaminated with blood and diseases transmitted through the respiratory tract pose a high risk for employees. The most important pathogens that can transmit from person to person are; are listed as HIV, HBV and HCV.[2,3] While some of the diseases caused by these pathogens can be prevented by vaccination, there is no vaccine yet produced for HCV and HIV related ones.

Healthcare workers may be exposed to contamination through needle and other sharp object injuries, mucosa and skin exposure.[4] It is reported that approximately 3 million healthcare workers are injured with a work tool and exposed to HBV and HCV annually.[5] In addition, it is estimated that 40% of Hepatitis B and Hepatitis C cases in healthcare workers are caused by occupational exposure.[6] Hepatitis B, HIV infection, multidrug-resistant tuberculosis and viral hemorrhagic fever which were acquired vocationally, caused the death of many healthcare workers.[7] Despite the fact that HBV vaccine has been available since the early 1980s and universal vaccination programs have been implemented worldwide since the early nineties, HBV continues to be the leading morbidity and mortality agent.[5]

Healthcare workers' exposure to vaccine-preventable diseases is an important problem all over the world. In 1982, the recommendations of the Advisory Committee on Immunization Practices in the United States of America of healthcare workers to immunize against Hepatitis B and then to influenza in 1984 paved the way for occupational immunization programs for this high-risk professional group.[8] In the same country, the Centers for Disease Control and Prevention (CDC) and other organizations have published guidelines for the protection of healthcare workers, recommendation of vaccines, early patient screening, isolation precautions and use of personal protective equipment. The most successful of these guidelines is known as the 1991 Occupational Safety and Health Administration (OSHA) blood borne pathogen standard, which contributes to the reduction of Hepatitis B among healthcare workers.[7] The declaration of HBV infection as a vocational disease for healthcare workers by the World Health Organization (WHO) and the International Labor Organization (ILO) in 1992 emphasized the importance of studies against the disease at a global level.[9] In our country, the "Regulation on Ensuring Patient and Employee Safety" explains the regulations for providing safe service and providing a safe environment for patients and employees.[10] One of these regulations is "health screenings for employees" in the clause "b" of the seventh article. It should be recognized that a comprehensive vocational health program is not only for employees but also reduces the risk of hospital-acquired infection among patients.[11]

As a result of contamination with pathogens that cause diseases, healthcare workers becoming ill or becoming a source of pathogen are among the possible negative consequences. Immunization, one of the preventive measures in the workplace, provides personal protection for healthcare workers, minimizes workforce absenteeism, and also makes a significant contribution to patient safety.[12] Immunization is important not only to prevent the healthcare worker from contracting exposure-related disease, but also to reduce the risk of transmitting the disease to susceptible patients as a source. Therefore, attention should be paid to the prevention and control of infectious diseases among healthcare workers and to improve the immunity rates of healthcare workers to help ensure patient safety and protection.[13-16] For these reasons, controls and protective practices in the workplace are important to prevent exposure.[4]

In this study, it was aimed to examine the seroprevalence of Hepatitis A, Hepatitis B, Hepatitis C, HIV, Mumps, Measles and Chickenpox in all staff and trainees working within at a training and research hospital.

MATERIALS AND METHODS

The study was conducted between January 1 and December 31, 2018. The data of the personnel and trainees followed by the occupational health and safety unit were obtained by retrospectively scanning through the hospital database. Hospital staff is grouped according to the service class as SHS, DHS, GIHS, THS, YHS and DG. In addition, health school students who are medical interns in the hospital are examined under the title of "intern". The vaccination status of the employees is not known due to the inaccessibility of some data in the study.

When evaluating the symptoms obtained in the study, IBM SPSS Statistics 22 for statistical analysis (SPSS IBM, Turkey) program is used. In the analysis of the data, descriptive statistical methods (mean, standard deviation, frequency) as well as the Chi-Square test and Fisher Freeman Halton tests were used to compare qualitative data. Significance was evaluated at the $p<0.05$ level.

Symptoms

A total of 1.674 people as 636 (38%) males and 1,038 (62%) females, are included in the study. 502 (30%) of these people are health school students who aremedical interns at the hospital and 1.162 (70%) are hospital staff. When the participants of the study are examined in terms of age distribution, it is seen that it consists of individuals between the ages of 16-64 and are more female participants (62%). It is seen that the highest number of participants are in SHS (734 persons) and in the DHS (342 persons). Table 1 shows the distribution and percentage rates of the personnel by age, gender, service class and titles.

The results of the serological tests performed on the participants within the scope of the research are evaluated in Table 2. In this context, it is seen that the AntiHBs tests (n=1.556) were performed at the most and 86% of these tests were positive results. VZV IgG test was performed on 1.076 employees and 97% of them were positive. On the other hand, it is seen that 1 person has VZV IgM positivity and 2 people have mumps IgM positivity. Anti HAV positivity and Measles IgM positivity were not detected in any employee.

Table 3 shows the evaluation of anti HAV IgG positivity among service classes, between SHS class subgroups and DHS class subgroups. A statistically significant difference was detected between service classes in terms of anti HAV IgG positivity. The rate of anti HAV IgG positivity of the DHS service class (78.7%) was statistically higher than GIHS (44.4%), SHS (51.4%), Intern (29.4%) and GM (52.9%) service classes significantly ($p1=0.028$; $p2=0.000$; $p3=0.000$; $p4=0.031$). The rate of anti HAV IgG positivity of the intern service class (29.4%) was detected statistically significantly lower than the SHS (51.4%) and YHS (77.8%) service classes ($p1=0.000$; $p2=0.004$). No statistically significant difference was detected among other service classes in terms of anti HAV IgG positivity.

No statistically significant difference was detected between SHS subclasses in terms of anti HAV IgG positivity.

A significant difference was detected between the DHS subclasses in terms of anti HAV IgG positivity statistically. The rate of anti HAV IgG positivity of the welcoming staff class (52.9%) was detected significantly lower than work-

Table 1. Distribution of age, gender and service class

	n	%
Age	16-64	30.72±9.72
Gender		
Male	636	38
Female	1038	62
Service Class		
DHS	342	20.4
GIHS	31	1.9
SHS	734	43.8
Medical intern	502	30
THS	8	0.5
YHS	38	2.3
GM	19	1.1
SHS class analysis (n=734)		
Others	22	3
Midwife	21	2.9
Pharmacist	11	1.5
Physiotherapist	12	1.6
Doctor	290	39.5
Nurse	261	35.6
Health officer	46	6.3
Health technician	63	8.6
Health operator	8	1.1
DHS class (n=342)		
Workshop-technical personnel	15	4.4
Security personnel	48	14
Patient welcoming desk	17	5
Clinical support personnel	79	23.1
Cleaning staff	73	21.3
Data staff	110	32.2

Table 2. Distribution of serology test results

Serology test results positive	n	%
Anti HAV IgG (n=1.270)	655	51.6
Anti HBs (n=1.556)	1336	85.9
Anti HCV (n=1.584)	4	0.3
Anti HIV	-	-
HBsAg (n=1.533)	17	1.1
Mumps IgG (n=792)	764	96.5
Mumps IgM (n=764)	2	0.3
MeaslesIgG (n=784)	734	93.6
MeaslesIgM	-	-
VZV Ig G (n=1.076)	1047	97.3
VZV Ig M (n=1.055)	1	0.1

shop-technical staff (93.3%), security personnel (87.2%), clinical support personnel (93.7%) and cleaning staff (87.5%) of DHS classes statistically (p1=0.018; p2=0.003; p3=0.000; p4=0.003). The rate of anti HAV IgG positivity (60.2%) of the data personnel was detected significantly lower than workshop-technical personnel (93.3%), security personnel (87.2%), clinical support personnel (93.7%) and cleaning personnel (%) 87.5) of DHS classes statistically (p1=0.026; p2=0.002; p3=0.000; p4=0.000). There was no statistically significant difference between the other DHS classes in terms of anti HAV IgG positivity.

Table 3. Evaluation of anti HAV IgG positivity according to service class, SHS class and DHS class

	Anti HAV IgG		
	Negative n (%)	Positive n (%)	p
Service class			
DHS	72 (21.3%)	266 (78.7%)	[1]0.000*
GIHS	5 (55.6%)	4 (44.4%)	
SHS	230 (48.6%)	243 (51.4%)	
Intern	296 (70.6%)	123 (29.4%)	
THS	2 (40%)	3 (60%)	
YHS	2 (22.2%)	7 (77.8%)	
GM	8 (47.1%)	9 (52.9%)	
SHS class			
Others	11 (64.7%)	6 (35.3%)	[2]0.796
Midwife	4 (57.1%)	3 (42.9%)	
Pharmacist	4 (40%)	6 (60%)	
Physiotherapist	5 (71.4%)	2 (28.6%)	
Doctor	91 (46%)	107 (54%)	
Nurse	77 (48.1%)	83 (51.9%)	
Health officer	11 (47.8%)	12 (52.2%)	
Health technician	23 (52.3%)	21 (47.7%)	
Health operator	4 (57.1%)	3 (42.9%)	
DHS sınıf			
Workshop-technical personnel	1 (6.7%)	14 (93.3%)	[1]0.000*
Security personnel	6 (12.8%)	41 (87.2%)	
Patient welcoming desk	8 (47.1%)	9 (52.9%)	
Clinical support staff	5 (6.3%)	74 (93.7%)	
Cleaning staff	9 (12.5%)	63 (87.5%)	
Data staff	43 (39.8%)	65 (60.2%)	

[1]Chi-square test; [2]Fisher freemanhalton test; *p<0.05.

AntiHBs positivity rates have been examined, and the results are shown in Table 4. A statistically significant difference was detected between service classes in terms of being antiHBs positive. The rate of antiHBs positivity of SHS service class (94.3%) was detected significantly higher than DHS (61.7%), GIHS (66.7%), THS (62.5%), YHS (57.1%) and GM (70%), 6) service classes statistically (p1=0.000; p2=0.000; p3=0.009; p4=0.000; p5=0.003). The rate of antiHBs positivity of intern service class (95.9%)was detected significantly higher than DHS (61.7%), GIHS (66.7%), THS (62.5%), YHS (57.1%) and GM (70%), 6) service classes statistically (p1=0.000; p2=0.000; p3=0.004; p4=0.000; p5=0.001). No statistically significant difference was detected among other service classes in terms of antiHBs positivity.

Table 4. Evaluation of anti antiHBs positivity according to service class, SHS class and DHS class

	Anti HBs		
	Negative n (%)	Positive n (%)	p
Service class			
DHS	130 (38.3%)	209 (61.7%)	[1]0.000*
GIHS	10 (33.3%)	20 (66.7%)	
SHS	39 (5.7%)	651 (94.3%)	
Intern	18 (4.1%)	419 (95.9%)	
THS	3 (37.5%)	5 (62.5%)	
YHS	15 (42.9%)	20 (57.1%)	
GM	5 (29.4%)	12 (70.6%)	
SHS class			
Others	3 (13.6%)	19 (86.4%)	[2]0.063
Midwife	0 (0%)	18 (100%)	
Pharmacist	0 (0%)	11 (100%)	
Physiotherapist	0 (0%)	12 (100%)	
Doctor	13 (4.9%)	251 (95.1%)	
Nurse	10 (4%)	243 (96%)	
Health officer	4 (9.8%)	37 (90.2%)	
Health technician	8 (13.1%)	53 (86.9%)	
Health operator	1 (12.5%)	7 (87.5%)	
DHS class			
Workshop-technical personnel	7 (46.7%)	8 (53.3%)	[1]0.001*
Security personnel	27 (57.4%)	20 (42.6%)	
Patient welcoming desk	10 (58.8%)	7 (41.2%)	
Clinical support personnel	17 (21.5%)	62 (78.5%)	
Cleaning personnel	27 (37%)	46 (63%)	
Data staff	42 (38.9%)	66 (61.1%)	

[1]Chi-square test; [2]Fisher freemanhalton test; *p<0.05.

There was no statistically significant difference between SHS subclasses in terms of antiHBs positivity.

A statistically significant difference was detected between the DHS subclasses in terms of antiHBs positivity (p=0.001). The rate of antiHBs positivity of the security personnel class (42.6%) was statistically detected lower than clinical support personnel (78.5%), cleaning personnel (63%) and data personnel (61.1%) of DHS classes significantly (p1=0.000; p2=0.028; p3=0.033). The rate of antiHBs positivity (78.5%) of the clinical support personnel was statistically detected higher than the welcoming staff (41.2%) and the data staff (61.1%) of DHS classes (p1=0.005; p2=0.018). No statistically significant difference was detected between the other DHS classes in terms of antiHBs positivity.

When the rates of HBsAg positivity among service classes were evaluated, no statistically significant difference was detected between classes. In addition, no statistically significant difference was detected between both SHS subclasses and DHS subclasses in terms of HBsAg positivity. Detailed data of the findings are shown in Table 5.

Table 6 shows the rates of mumps IgG positivity among service classes, and as a result of the analysis, no statistically significant difference was detected between service classes. No statistically significant difference was detected between SHS subclasses and DHS subclasses in terms of mumps IgG positivity.

As shown in Table 7, a statistically significant difference was detected between service classes in terms of the rates of measles IgG positivity (p=0.001). The rate of measles IgG positivity of SHS service class (90%) was detectedsignificantly lower than the DHS service class (97.4%) statistically (p=0.000). There was no statistically significant difference between other service classes in terms of the rates of measles IgG positivity.

Table 5. Evaluation of anti HBsAg positivity according to service class, SHS class and DHS class

	HBsAg		
	Negative n (%)	Positive n (%)	p
Service class			
DHS	332 (98.2%)	6 (1.8%)	0.093
GIHS	30 (100%)	0 (0%)	
SHS	681 (99%)	7 (1%)	
Intern	415 (99.5%)	2 (0.5%)	
THS	7 (87.5%)	1 (12.5%)	
YHS	34 (97.1%)	1 (2.9%)	
GM	17 (100%)	0 (0%)	
SHS class			
Others	22 (100%)	0 (0%)	0.927
Midwife	18 (100%)	0 (0%)	
Pharmacist	11 (100%)	0 (0%)	
Physiotherapist	12 (100%)	0 (0%)	
Doctor	262 (98.9%)	3 (1.1%)	
Nurse	248 (98.8%)	3 (1.2%)	
Health officer	41 (100%)	0 (0%)	
Health technician	59 (98.3%)	1 (1.7%)	
Health operator	8 (100%)	0 (0%)	
DHS class			
Workshop-technical personnel	14 (93.3%)	1 (6.7%)	0.061
Security personnel	46 (100%)	0 (0%)	
Patient welcoming desk	17 (100%)	0 (0%)	
Clinical support personnel	78 (100%)	0 (0%)	
Cleaning staff	69 (94.5%)	4 (5.5%)	
Data staff	108 (99.1%)	1 (0.9%)	

Fisher freemanhalton test.

Table 6. Evaluation of mumps IgG positivity according to service class, SHS class and DHS class

	Mumps IgG		
	Negative n (%)	Positive n (%)	p
Service class			
DHS	10 (2.9%)	331 (97.1%)	0.537
GIHS	2 (9.1%)	20 (90.9%)	
SHS	16 (4%)	383 (96%)	
Intern	0 (0%)	4 (100%)	
THS	0 (0%)	6 (100%)	
YHS	0 (0%)	20 (100%)	
SHS class			
Others	0 (0%)	12 (100%)	0.168
Midwife	0 (0%)	10 (100%)	
Pharmacist	2 (22.2%)	7 (77.8%)	
Physiotherapist	0 (0%)	9 (100%)	
Doctor	7 (3.8%)	175 (96.2%)	
Nurse	2 (1.9%)	105 (98.1%)	
Health officer	2 (8%)	23 (92%)	
Health technician	3 (8.1%)	34 (91.9%)	
Health operator	0 (0%)	8 (100%)	
DHS class			
Workshop-technical personnel	0 (0%)	15 (100%)	0.438
Security personnel	4 (8.3%)	44 (91.7%)	
Patient welcoming desk	0 (0%)	17 (100%)	
Clinical support personnel	2 (2.5%)	77 (97.5%)	
Cleaning staff	2 (2.7%)	71 (97.3%)	
Data staff	2 (1.8%)	107 (98.2%)	

Fisher freemanhalton test.

Table 7. Evaluation of measles IgG positivity according to service class, SHS class and DHS class

	Measles IgG		
	Negative n (%)	Positive n (%)	p
Service class			
DHS	9 (2.6%)	332 (97.4%)	0.001*
GIHS	0 (0%)	23 (100%)	
SHS	39 (10%)	352 (90%)	
Intern	0 (0%)	5 (100%)	
THS	0 (0%)	5 (100%)	
YHS	2 (10.5%)	17 (89.5%)	
SHS class			
Others	1 (9.1%)	10 (90.9%)	0.933
Midwife	1 (11.1%)	8 (88.9%)	
Pharmacist	1 (11.1%)	8 (88.9%)	
Physiotherapist	1 (12.5%)	7 (87.5%)	
Doctor	15 (8.4%)	164 (91.6%)	
Nurse	13 (12.5%)	91 (87.5%)	
Health officer	2 (7.7%)	24 (92.3%)	
Health technician	4 (10.8%)	33 (89.2%)	
Health operator	1 (12.5%)	7 (87.5%)	
DHS class			
Workshop-technical personnel	1 (6.7%)	14 (93.3%)	0.399
Security personnel	2 (4.2%)	46 (95.8%)	
Patient welcoming desk	1 (5.9%)	16 (94.1%)	
Clinical support personnel	1 (1.3%)	78 (98.7%)	
Cleaning staff	1 (1.4%)	72 (98.6%)	
Data staff	3 (2.8%)	106 (97.2%)	

Fisher freemanhalton test; *p<0.05.

No statistically significant difference was detected between SHS and DHS subclasses in terms of the rates of measles IgG positivity.

Analyzes within the scope of VZV IgG were performed (Table 8), and a statistically significant difference was detected between service classes in terms of VZV IgG positivity (p=0.031). The rate of VZV IgG positivity of SHS service class (96%) was detected to be statistically significantly lower than the DHS service class (99.4%) (p=0.004). There was no statistically significant difference between other service classes in terms of VZV IgG positivity.

When the SHS and DHS subclasses were examined in terms of their internal distribution, it was detected that there was no statistically significant difference between the titles in terms of VZV IgG positivity.

RESULTS

Tests conducted within the scope of employee health in hospitals guide the making of the necessary regulations to increase the immunity of the personnel by vaccination or to prevent the transmission from the personnel to the patient (or from patient to personnel) carrying the disease pathogen. For this reason, it is an important to issue for healthcare professionals to follow the necessary blood tests against diseases that may be transmitted by blood, blood products or contaminated body fluids, vaccination and routine screening when necessary. It should not be forgotten that students who work as intern at hospitals due to their education in health vocational schools should also be considered within this scope.

It is thought that the evaluation of the seroprevalence levels of the staff periodically by the hospital administrations will provide them useful information in creating strategies at the corporate level. When evaluated specifically for the article; it is recommended by the hospital management to conduct studies for the immunization of seronegative employees. It is also thought that such studies will guide healthcare administrators and academicians to develop policies at national level.

Table 8. Evaluation of measles VZV IgG positivity according to service class, SHS class and DHS class

	VZV IgG		
	Negative n (%)	Positive n (%)	p
Service class			
DHS	2 (0.6%)	339 (99.4%)	0.031*
GIHS	0 (0%)	28 (100%)	
SHS	26 (4%)	630 (96%)	
Intern	0 (0%)	6 (100%)	
THS	0 (0%)	8 (100%)	
YHS	1 (2.7%)	36 (97.3%)	
SHS class			
Others	0 (0%)	18 (100%)	0.167
Midwife	0 (0%)	20 (100%)	
Pharmacist	0 (0%)	10 (100%)	
Physiotherapist	2 (16.7%)	10 (83.3%)	
Doctor	5 (2%)	240 (98%)	
Nurse	15 (6.1%)	230 (93.9%)	
Health officer	2 (4.9%)	39 (95.1%)	
Health technician	2 (3.5%)	55 (96.5%)	
Health operator	0 (0%)	8 (100%)	
DHS class			
Workshop-technical personnel	0 (0%)	15 (100%)	0.513
Security personnel	1 (2.1%)	47 (97.9%)	
Patient welcoming desk	0 (0%)	17 (100%)	
Clinical support personnel	0 (0%)	79 (100%)	
Cleaning staff	0 (0%)	73 (100%)	
Data staff	1 (0.9%)	108 (99.1%)	

Fisher freemanhalton test; *p<0.05.

DISCUSSION

The high risk of contact of healthcare workers with pathogens that cause infectious diseases increases the importance of taking preventive measures against these diseases and screening programs. Based on the importance of the subject, many studies have been conducted in our country examining the seropositivity level of healthcare professionals. In this study, the data of hospital staff were retrospectively analyzed to examine the seroprevalence of Hepatitis A, Hepatitis B, Hepatitis C, HIV, Mumps, Measles and Chickenpox.

HIV positivity was not detected in any service class in our study. Similarly, HIV positivity was not detected in many studies conducted on healthcare professionals.[9,14-16-35] In this context, it is seen that this result of the study is generally compatible with the literature.

When the positive results of the anti HAV test were evaluated, it was seen that the lowest rate was in the intern group. It is thought that the reason of this may be the younger age range of the trainee students according to the staff working in the hospital. As a matter of fact, Ödemiş et al.[17] stated that the AntiHAVIgG level was 16% in a study conducted with intern students working in health schools.

When the positivity of the AntiHBs test is examined in terms of service classes, it is seen that the highest level is in the intern and SH class. Onul et al.[14] stated in their study that AntiHBs positivity was highest in health technicians (94.4%), followed by nurses, cleaning staff and secretaries, respectively. According to the study conducted by Bosnak et al.,[16] AntiHBs positivity was observed as 88% in nurses and 73% in auxiliary staff (cleaning staff and emergency medicine technicians). Korkmaz et al.[34]detected positive results in nurses as 90%, doctors as 88%, cleaning personnel as 63%, anesthesia technicians as 100%, and laboratory technicians as 93%. On the other hand, in our study, the rate of healthcare personnel whose AntiHBs test was negative was detectedas 6%. While the rate of negative antiHBs test among healthcare workers was detected as 43.5% by the study of Özgüler et al.,[18] it was detectedas15.9% in the study conducted by Cılız et al.[19] It is seen that the results obtained in our study are better than these studies. On the other hand, low seropositivity in both healthcare professionals and students at the health schools is detected by the study conducted in Saudi Arabia. AntiHBs was detected negative in 23.3% of healthcare workers and 66.7% of students. It has been stated that the health personnel's occupational knowledge of bloodborne diseases, safe injection practices and standard measures for the prevention of infections are moderate.[20]

It was determined that the number of HBsAg positive personnel is 17 in total (1%). It was detected 1% in the study conducted by Tekin and Deveci, and 0.4% conducted by Akçalı et al.[21] In the study conducted by Ayrancı,[22] no HBsAg positive personnel were detected. In a study conducted with 571 healthcare workers in Korea, HBsAg and antiHBs positive rates were determined as 2.4% and 76.9%, respectively. It was observed that the antiHBs positive rate was lower in the physician group. In addition, antiHBc negative was detected in the antiHBs positive cases as 73.1%, this is significantly associated with HBV vaccination in the past. The distribution of antiHBs levels was not associated with age, gender or profession.[23] It is seen that the results obtained in our study are compatible with previous studies in our country.

In our study, it was detected that the AntiHCV test gave positive results in only 4 people (0.24%). In the studies conducted by Gökhan[23] and Ayrancı[22] for physicians and Altun et al.[25] for all healthcare personnel, no physician with a positive AntiHCV result was detected. Aşkar[26] determined the antiHCV positivity level as 0.015% in healthcare workers. Korkmaz et al.[34] detectedpositiveness in only 1 employee. Shoaei et al.[35] detected no HCV positivity in any of the 203 laboratory workers in their study. In this context, it can be said that the result obtained in our study is compatible with previous studies.

A total of 28 personnel with negative Mumps IgG test results were identified, and it is seen that these people

constitute 1.7% of the total personnel. While this rate was determined as 2.4% in Ayrancı's study, it is detected as 0.3% by Cılız et al.[19] Studies show that the Mumps IgG result is positive in high level for the healthcare personnel.

Measles IgG test was detected positive (94%) substantially in our study. When it is examined in terms of service classes, it is seen that this rate falls to 90% in the SH class, and 97.4% in the DH class. Köse and Temoçin[27] stated that measles IgG positivity was positively correlated with age. In their study, they detected that the positivity between the ages of 36-45 was at the highest level with 92.2%. Cılız et al.[19] detected the positivity of this test as 99.7%. In a study conducted for 1.811 healthcare workers in Japan, 91.8% of them were measles seropositive. In terms of gender-related differences, higher seropositivity was detected in women compared to men (92.2% vs. 84.7%; p<0.001).[28]

When VZV IgG positivity was examined for all healthcare workers, it was detected as 97.3%. It is seen that this rate is also high in previous studies. While Cılız et al.[19] detected positivity as 99.7% in all healthcare workers, Şengöz et al.[29] detectedpositivity as 97% for physicians and 94% of nurses. According to the study fulfilled by Türe et al.,[30] 98% of nurses and 97% of health technicians were positive.

In a study conducted on 256 first-year medical students in Slovenia, immunity was detected at a rate of 97.6% in chickenpox, 96.4% in measles, and 97.8% in mumps.[31] Hatakeyama et al.[32] (2014) detected that 98.5% of the healthcare workers were immune to measles, 85.8% to mumps and 97.2% to chickenpox in their study at the University Hospital of Tokyo.[32] In a study conducted in our country in 2006, the antibody rate of healthcare workers was detected as 98.6% in measles, 92.2% in mumps and 98% in chickenpox.[33] It is seen that the rates are at the same level with the rates in our study.

Ethics Committee Approval

Ethics Committee Approval is not require.

Informed Consent

Retrospective study.

Peer-review

Internally peer-reviewed.

Authorship Contributions

Concept: S.E.; Desing: S.E., Ö.G.; Supervision: Y.S.; Fundings: None; Materials: S.E., Ö.G.; Data: S.E.; Analysis: Ö.G.; Literature search: Ö.G., Y.S.; Writing: Ö.G., Y.S., S.E.; Critical revision: Y.S.

Conflict of Interest

None declared.

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Sağlık Çalışanlarında Hepatit A, Hepatit B, Hepatit C, HIV, Kabakulak, Kızamık ve Suçiçeği Seroprevalansının Değerlendirilmesi

Amaç: Çalışmada SBÜ Fatih Sultan Mehmet Eğitim ve Araştırma Hastanesi bünyesinde görev yapan tüm personel ve stajyer öğrencilerin 2018 yılına ait Hepatit A, Hepatit B, Hepatit C, HIV, Kabakulak, Kızamık ve Suçiçeği seroprevalansının incelenmesi amaçlanmıştır.

Gereç ve Yöntem: Toplam 1674 sağlık personeli ve stajyer öğrenciye ait serum örneğinde Hepatit A, Hepatit B, Hepatit C, HIV, Kabakulak, Kızamık ve Suçiçeği hastalıklarına ait yapılan testler retrospektif olarak tarandı. Elde edilen bulgular IBM SPSS Statistics 22 (IBM SPSS, Türkiye) programı kullanılarak analiz edildi. Verilerin analizinde tanımlayıcı istatistiksel metodlar, ki-kare testi ve Fisher Freeman Halton testleri uygulandı.

Bulgular: Araştırmada 16-64 yaş aralığında, 636'sı (%38) erkek ve 1038'i (%62) kadın olmak üzere toplam 1674 kişi çalışma kapsamına alınmıştır. Bu kişilerden 502'si (%30) hastanede staj yapan sağlık okulu öğrencileridir. Toplam personel açısından incelendiğinde; AntiHBs (%86), Kabakulak IgG (%97), Kızamık IgG (%94) ve VZV IgG (%97) yüksek oranda pozitif olduğu görülmüştür. Anti HIV ve Kızamık IgM pozitif olan hiçbir sağlık çalışanına rastlanmamıştır. AntiHCV pozitif olan 4 kişi, Kabakulak IgM pozitif olan 2 kişi ve VZV IgM pozitif olan 1 kişi olduğu tespit edilmiştir.

Sonuç: Hastanelerde çalışan personelin bulaş sonucunda oluşabilecek hastalıklara karşı koruyucu önlemlerin alınması ve bağışıklama çalışmaları yapılmalıdır. Çalışmamızdan elde edilen sonuçların ülkemizde yapılan benzer çalışmalar ile uyumlu olduğu görülmüştür.

Anahtar Sözcükler: Aşı ile önlenebilen hastalıklar; hastane; sağlık çalışanları; seroprevalans.