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Evaluation of HBsAg, anti-HCV and HIV Positivity Rates in Emergent and Selective Surgery Patients in General Surgery in One Year Period

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Abstract

Introduction: Healthcare workers are more vulnerable for blood-borne diseases due to various blood-related procedures. According to World Health Organization's worldwide annual report, there are approximately 3 million interventional injury cases of health workers. Knowing the potential risk before surgical intervention will ensure that the healthcare personnel and the surgeon act more cautiously. The aim of this study was to determine the rates of pre-operative HBV, HCV and HIV positivity in patients operated and followed emergently and electively in our clinic between January 2012 and December 2012, and to determine the rates of exposure to blood pathogens and to emphasize the necessity of precautions to be taken.

Materials and Methods: HBV Surface Antigen (HbsAg), anti-HCV and anti-HIV antibody levels, which are measured using Enzyme Linked Immuno-Sorbent Assay (ELISA), were obtained from the files of 587 patients followed up after emergency and elective surgery in our General Surgery Clinic between January 2012-December 2012, and from the blood samples collected preoperatively. These results and demographic data, surgeries performed are retrospectively analyzed.

Results: While HbsAg was positive in 20 of 587 cases (3.4%), anti-HCV and anti-HIV were not positive in any patient. A total of 103 patients (17.5%) underwent emergency surgery and HbsAg was detected in 1 patient (0.97%). HbsAg was positive in 19 patients (3.93%) who underwent elective surgery. None of the patients were positive for anti-HIV and anti-HCV.

Conclusions: Performing pre-operative viral serological tests on patients who will undergo surgery can cause the surgery team to work more cautiously. We propose that, assuming that the serological tests are positive in order to reduce the transmission will be useful for the health safety of the operating room personnel.

Keywords: Anti- HCV; Anti- HIV; HbsAg

Introduction

Healthcare workers are more vulnerable for blood-borne diseases due to various blood-related procedures [1-3]. Especially surgeons working in the emergency room, or the operating room, anesthesia specialists and assistant health personnel, and laboratory and hemodialysis unit workers constitute the greatest risk group [1-6]. Injury during different interventional procedures create threats to the health care workers in terms of infectious body fluids (blood, saliva, etc.) and blood pathogens [2]. Hepatitis vi-ruses (Hepatitis B and Hepatitis C viruses) and HIV have a signifi-cant role among these transmitted blood pathogens [1-6]. Fear of contamination can also cause various psychiatric stress disorders among health professionals [7]. According to the World Health Organization, the interventional injuries of the health workers in the world are stated as 3 million per year. As a result, up to 100000 people can develop HBV, up to 15000 can develop HCV and up to 1000 can develop HIV infections [2]. Although different departments have risks, surgeons have the highest risk of transmission.

Protection from these infectious diseases will help both to increase in work safety for healthcare professionals and reduce potential contagiousness. For this purpose, knowing the potential risks of the patient before surgery will help healthcare personnel and the surgeon to behave more carefully, even though they reduce the likelihood of infection and take technical precautions in the rooms before surgical intervention [8-10]. The aim of this study was to determine the rates of pre-operative patients with HBV, HCV and HIV who were operated and followed emergently and electively in our clinic between January 2012 and December 2012, and to de-termine the rates of exposure to blood pathogens and to emphasize the necessity of precautions to be taken.

Materials And Methods

Between January 2012 and December 2012, our General Surgery Clinic reported 587 patient files that were emergently and electively operated and followed up, preoperative blood samples of the patients were taken and results of HBV Surface Antigen (HBsAg), anti-HCV and anti-HIV antibodies were obtained by Enzyme Linked Immuno Sorbent Assay (ELISA) method. HBsAg, anti-HIV, anti-HCV, age, gender, surgery performed and emergen-cy or elective operation were retrospectively screened. The SPSS 11.5 package program was used in the data analysis.

Results

The mean age of the 587 patients who were operated on was 250 males (42.6%) and 337 females (57.4%) was 41.08 ± 17.25 years (min-max: 7- 92 years). Of the 587 cases, HBsAg was posi-tive in 20 patients (3.4%), whereas anti-HCV and anti-HIV were not positive in any patient. In a total of 103 patients (17.5%), 1 patient (0.9%) was HBsAg-positive and none were found to have anti-HIV and anti-HCV positivity (Table 1).

	FEMALE		MALE		TOTAL
	Positive	Negative	Positive	Negative	
HBsAg	6 (2.4 %)	244 (97.6 %)	14 (4.15 %)	323 (95.85 %)	587
Anti- HCV	0 (0 %)	250 (100 %)	0 (0 %)	337 (100 %)	587
Anti- HIV	0 (0 %)	250 (100 %)	0 (0 %)	337 (100 %)	587

Table 1: HBsAg, Anti-HCV and Anti-HIV Positive Rates According to Gender of Patients.

In 19 (3.93%) patients among electively operated patients were HBsAg-positive and no anti-HCV and anti-HIV positivity were found. 14 (70%) of the HBsAg positive patients were male and 6 (30%) were female. Seven cases (35%) of HBsAg positive cases were operated from inguinal hernia, 5 (25%) were from benign anorectal diseases (anal fistula, fissure, hemorrhoidal disease and anal abscess), 3 (15% 10%) were from pilonidal sinus, 2 (10%) were from multinodular goiter and 1 (5%) was from acute appendicitis (Table 2).

	HBsAg		Anti- HCV		Anti- HIV		TOTAL
	Positive	Negative	Positive	Negative	Positive	Negative	
MNG	2 (2.4 %)	35 (97.6 %)	0 (0 %)	37 (95.85 %)	0 (0 %)	37 (95.85 %)	37
Inguinal hernia	7 (6.2 %)	113 (93.8 %)	0 (0 %)	120 (100 %)	0 (0 %)	120 (100 %)	120
Anorectal be-nign diseases	5 (3.8 %)	127 (96.2 %)	0 (0 %)	132 (100 %)	0 (0 %)	132 (100 %)	132
Pilonidal sinus	2 (2.3 %)	85 (97.7 %)	0 (0 %)	87 (100 %)	0 (0 %)	87 (100 %)	87
Cholelithiasis	3 (3.9 %)	74 (97.1 %)	0 (0 %)	77 (100 %)	0 (0 %)	77 (100 %)	77
Umbilical hernia	0 (0 %)	18 (100 %)	0 (0 %)	18 (100 %)	0 (0 %)	18 (100 %)	18
Incisional hernia	0 (0 %)	10 (100 %)	0 (0 %)	10 (100 %)	0 (0 %)	10 (100 %)	10
Acute appen-dicitis	1 (1.15 %)	86 (98.85 %)	0 (0 %)	87 (100 %)	0 (0 %)	87 (100 %)	87
Duodenal ulcer perforation	0 (0 %)	3 (100 %)	0 (0 %)	3 (100 %)	0 (0 %)	3 (100 %)	3
Sharp tools ab-domen injury	0 (0 %)	2 (100 %)	0 (0 %)	2 (100 %)	0 (0 %)	2 (100 %)	2

Breast mass	0 (0 %)	7 (100 %)	0 (0 %)	7 (100 %)	0 (0 %)	7 (100 %)	7
Ventral herni	0 (0 %)	1 (100 %)	0 (0 %)	1 (100 %)	0 (0 %)	1 (100 %)	1
Lipoma	0 (0 %)	4 (100 %)	0 (0 %)	4 (100 %)	0 (0 %)	4 (100 %)	4
Colon cancer	0 (0 %)	1 (100 %)	0 (0 %)	1 (100 %)	0 (0 %)	1 (100 %)	1
İleus	0 (0 %)	1 (100 %)	0 (0 %)	1 (100 %)	0 (0 %)	1 (100 %)	1
Total	20 (3.4 %)	567 (96.6 %)	0 (0 %)	587 (100 %)	0 (0 %)	587 (100 %)	587

Table 2: Distribution of All Cases.

Discussion

General surgical specialization includes a large number of surgical interventional procedures in both emergency and elec-tive conditions. This increases the likelihood of direct contact with contaminated devices and body fluids during surgical procedures in surgical clinics [11-12]. Surgeons are in the highest risk group of injury, and staff in the operating room are in contact with the patients' blood for half of the procedures [13]. Surgeons have a 5.5 times higher risk than other physicians [14-17]. Despite taking all precautions, surgeons get injured in up to 6% of the surgeries [3]. In our country, the rate of exposure to infected body fluids percutaneously or mucosal is 50.1% [3]. The likelihood of injury depends on many factors such as the surgeon's experience, duration of surgical procedure, and type of surgical procedure [18]. The HBsAg positivity in terms of HBV rate in Turkey is 8% (2-10%) [12,19]. 3-4 million people were found to be carriers [20]. For this reason, Turkey is regarded as a mid-level endemic region for HBV and as a low-level endemic region for HCV [20]. The incidence of viral hepatitis in health care personnel is 3 to 6 times higher than other occupations and in various studies, the seroprevalence of HBsAg and HCV have been reported as 3.3-16.4% and 0.9% [20-22]. In various studies, HBV and HCV infection risk as a result of con-taminant syringe infusion was reported to be 7-30 % and 4-10 %, respectively [23]. Following percutaneous injury, the risk of HIV transmission ranges from 0.1 to 0.25 % [24]. The risk of HIV con-tamination with mucosal contact is 0.09% [24]. It is recommended to follow the surgical disinfection rules in order to be protected from possible contamination and it is suggested to follow different ways for the protection from the contact (double glove use, face and eye protectors, plastic aprons) [1,14,24]. In addition, vaccina-tion appears to be an important protection way against possible risk of transmission [24].

Twenty of the 587 patients included in our study were HBsAg positive (3.4%). This rate was similar to the seroprevalence rates of HBsAg in Turkey [20-22]. Anti-HCV positivity was not observed in any of our patients and the same was true for anti-HIV. Similar studies with the screening results of general population and the donors are present [11]. Although only 1 (0.9%) of HBsAg-positive case is found in emergency cases, injury cases without any serological examination may constitute the greatest possible risk. The most basic reason for this is that despite all the precautions taken, surgeons are injured in 6% of the surgeries [3]. Although none of the patients were positive for anti-HCV and anti-HIV, the probability of transmission of percutaneous injury and mucosal contact should not be ruled out.

Conclusion

Preoperative viral serologic examinations in patients who will undergo emergent or elective surgery may be a caution for more rigorous operation of the operating room team who are in the high risk group. The most important problem here is the patients whose blood results can not be waited. For these patients, we believe that approaching as if the serologic tests are positive may be useful in terms of minimising infectivity by the surgeon and the staff in the operating room. It should also be remembered that even if they are seronegative, patients may be in the window period and especially in the emergencies, they should be regarded as a potential carrier of disease.

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