

Infectious Diseases Study in Military Health Personnel

Mohamad Javad Hossainpoorfard¹, Ali Choopani^{2,4*}, Mansoor Babaie¹, Aref Barkhordari³, Hassan Rafati⁵, Baratali Asghari¹, Mehrdad Moosazadeh Moghaddam², Ashraf Paktinat⁶, Mojdeh Shantiaee⁷

Health Management Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran

² Applied Biotechnology Research Center, Baqiyatallah university of Medical Sciences, Tehran, Iran

³ Nanotechnology Research Center, Baqiyatallah university of Medical Sciences, Tehran, Iran

⁴ Dept. Biology, Payamnoor University, Iran, Tehran

⁵ Abrar Institute, Tehran, Iran

⁶ Dentistry Department, Kowsar Clinic, Minicity, Tehran, Iran

⁷ Imami School, District 10 Education, Tehran, Iran.

Received: 2014/10/12

Accepted: 2015/01/11

Abstract

Introduction: Infectious diseases are common in health care personnel. The aim of this study was to investigate the prevalence of these diseases on military health personnel.

Methods: This descriptive, cross-sectional study in military health personnel during years 2011-2012 in one corps studied. First, a questionnaire developed and presented to the personnel. Suspicious personnel examined by a physician. Then, they sent to paraclinical for final diagnosis. Results analyzed by spss v17 software, chi-square, and Fisher tests.

Results: Patients were 11.1 percent of total personnel. Viral infectious with 55.5 percent were the most in-patient. Positive results were obtained in 86.7 percent of the men (n = 39) and 13.3 percent of women (n = 6).

Conclusion: The infectious disease has affected more than one in ten personnel. Medical and nursing groups are most vulnerable. For the protection of the personnel, health and safety in the workplace will be considerate.

Keywords: Infection Diseases, Health Care Personnel, Armed Forces, Military

Introduction

Among the diseases that people are suffering, there are diseases associated with the work; the risks of various jobs up to 900 have mentioned the main causes of death, disease, disability and injury of the personal [1]. In a study with four million works, related disease has been reported [2]. Employees in the United States healthcare near to the 80percent of women and Broad occupational hazards encountered. Prevention with decrease in contact of job dangerous factors is possible but experience has shown that the number of diseases and events and obstacles in job is growing. Occupational injury rate for personal has been growing in the past decade [3]. Health care personnel, at the risk of developing many diseases and health of the personnel services and employees in the health care, Is in serious danger. Sink needle into the hands, most of the major technician stakes [4]. Ballistics sharp needle injuries are among the people who exposed to blood- borne infections such as HIV and hepatis

B and C [5]. Damages of needles and sharp bodies including cases that people in exposed to blood borne disease such as AIDS and Hepatitis B and c [5]. More than 20 pathogens transmitted through injuries from needles and sharp instruments [6]. According to the Control Disease Center [CDC] studies, the risk of damage caused by contaminated instruments was 0.3percent of HIV, the possible risk of hepatitis C 10-2.7percent and the risk for hepatitis B 45-5percent [7 , 8]. According to the World Health Organization, 2.5percent of the health workers around the world due to occupational exposures AIDS / HIV and 40 percent have been infected hepatitis B and C [9]. The cost of treating the three diseases will be thousands of dollars. In addition, during injury, emotional stress and anxiety many experience to personals that are not measurable. (10) In one study in the United States, 385,000 in contact with needles or sharp objects used in environments where the risk of infection through blood transfusion has been reported that there were 78,100 cases in hospitals

*Corresponding Author: Ali Choopani, Email: ABRCs@bmsu.ac.ir

[11]. The rate of HbsAg-positive cases at two hospitals, 0.66 percent with the other studies that about (0.6-1.4) Is tagged [12]. In a study of 3.3 percent of the staff of the laboratories has been reported HBsAg positive [13]. In another study, the most common face of sharp medical instruments among nurses in a military hospital with a syringe, maximum number of exposures that have occurred in internal sectors [14]. Other study, exposure to sharp instruments and syringe the most reported from nurses in military hospitals. The most number of over exposure has happened in department of Internal Medicine [14]. A variety of parasitic infection, poisoning with chemicals such as ether and formalin, bacterial infections and viral effect of direct contact with infectious samples, contact with the pure culture of bacteria or viruses, the dangers that are threatening the health of the personnel [15]. Inhalation of contaminated aerosols due to improper fixation of spacemen could be involved Microbiology and Virology sector workers [16]. Study of 57 employee's health centers in the United States, during the 20 years before they had been suffering from AIDS, it was cleared, that 86percent of them had a history of contact with patients ' blood. Approximately 11percent of these individuals have been asymptomatic and 14 percent of them despite doing prophylaxis of contact, showed symptoms of the disease [4] In Taiwan, a retrospective study on 8645 employees working in health centers showed that 30percent of personal over 12 months on the job needles were sunk into their hands. Of these, 52percent were happen during sampling, and 8.2 percent affected to infectious diseases such as hepatitis C Hepatitis B syphilis and AIDS [17]. A study in Egypt, injuries from sharp instruments 66.2 percent Reported. [18] In one hospital in Lehman, this type of injury 31.4 percent and 45 percent reported in Pakistan [19 , 20]. In Saudi Arabia 46.8 percent [21] Turkey's 45percent and 51percent in the Australian, Iran 41percent of injuries caused by of needles [22 , 23]. In our country, the detailed statistics of occupational injuries is not available in the personal. But for the study in 1996, based in Mazandaran, 57.3percent of the health workers have had a history of contact with a needle [12] In study of Kurdistan 64.9percent and 39.3percent in yasuj, damage caused by sharp instruments and contaminated has been reported [24]. In a study that carried out in Zahedan University, the prevalence of needle injuries among staff working in health centers 64.9percent reported. Of this group, 57.2percent damaged by more than two times, the most over a position that people had been damaged when Blood collection and Infusions [25].

Methods

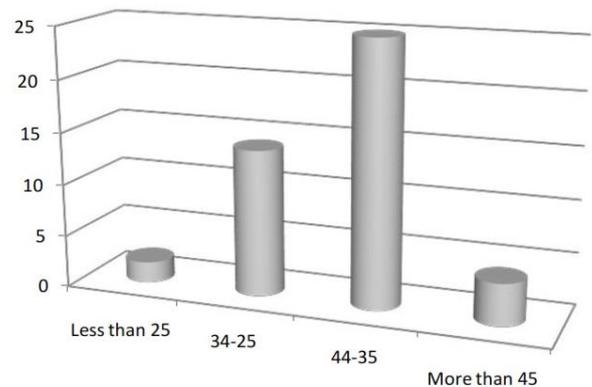
This analytical descriptive study performed during the years 2011-2012. The Statistical Society of the study included [405 person] staff of the medical centers. All people with the questionnaire complete

the requested information. The information contained in the questionnaire include sex, age, marital status, type of activity, work experience, type of membership as well as catching infectious diseases. Suspicious personnel examined by physician. Then with the help of were sent to preclinical for final diagnosis. Results analyzed by spss v17 software, chi-square, and Fisher tests.

Results

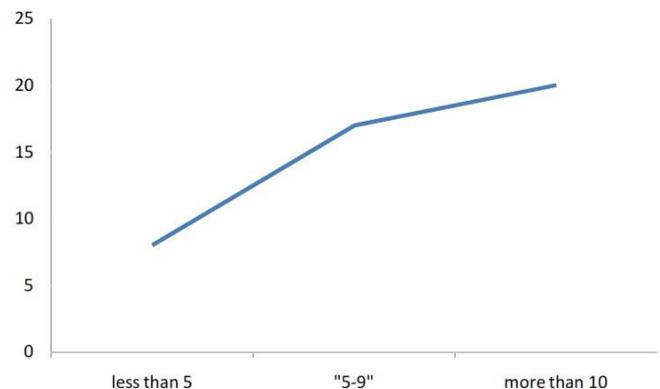
After medical examination, 45 cases [11.1percent] were infected. Men with 86.7percent [n = 39] the highest and women13.3 percent (n = 6) were the lowest reported. Nearly 65percent were aged 35 years or more (Figure 1).

Figure1. Patients' age distribution



Accordingly, the relationship between age and the disease can be a significant consideration (P< 0.01). Time of working in healthcare centers is an important factor in presence variety of diseases, more than 80percent of those with 5 years of work experience (Figure 2).

Figure2. Length of employment



That is a significant correlation with the prevalence of the disease (P< 0.01). Almost 50 percent of employees in these centers that were suffering from infectious diseases, the doctors and the nurses are being directly involved in treatment (Figure 3), Almost 50 percent of employees in these centers that were suffering from Infectious diseases, the doctors and the nurses are being directly involved

in treatment (Figure 3), and 60 percent of them were as official members (Figure 4).

The factors that cause of disease among subjects has been inserted (Figure 5), which shows, more than 55 percent of people infected by the virus. Discussion: Every job has its hazards and related health problems. In addition, there is no exception for medical staff [27]. In this study, the age group 35years and above shows the highest percentage of infections (64.5%). In addition, this may be due to contact with infectious agents in this age group over the years in different areas and are working multiple shifts.

Figure 3. Health Staff directly involved in Treatment

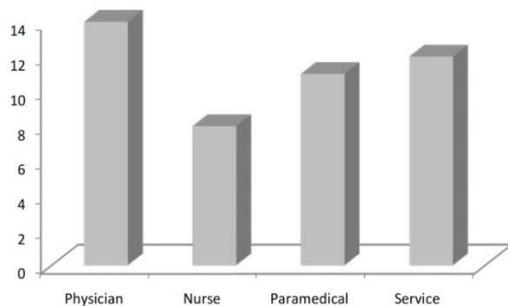


Figure 4. 60 percent of them have served as official personnel

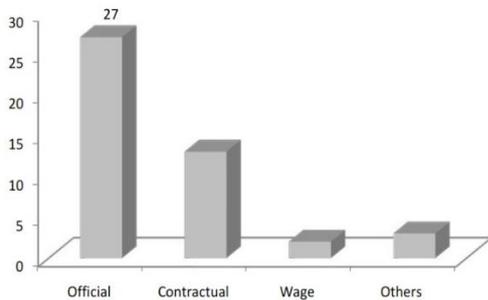
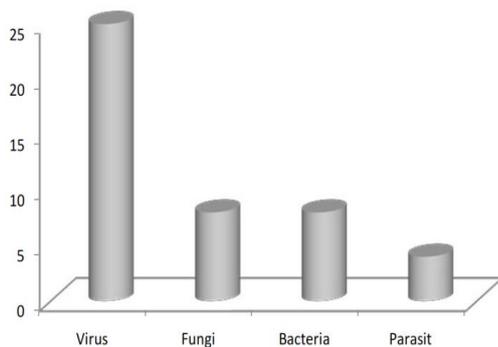


Figure 5. Profile of infectious Agent



The relationship between age and susceptibility to infectious disease, is significant ($P < 0.01$). This study was matched with Mossadegh et al, which is between age and the extent of the injury on the job is a significant relationship [28]. Most patients (44.4%) relevant to personal with work experience of 10 years and a significant correlation between experience and the risk of infectious disease this is matched with studies Mahmoudi et al [12], nakhai

et al, [27], nasiri et al, [29], and zamanian et al, [30]. This is due to the involved of these personnel with healthcare activities. The high percentage medical group of infectious diseases (48.9%), it may be due to a shortage of nurses. Because this treatment centers, many general practitioners forced to do the duties of nurses. If do not take the necessary measures, in addition to the risk of health care workers, the risk of leaving it out of the realm of activity due to fear of disease, because in this centers, many doctors are forced to do the duties of nurses.

The aim of this study was to determine the prevalence and causes of damage and its reactions in healthcare personnel, to identify the job injuries and scheduling in health staff. The results provide the necessary information to make decisions and plan for administrators.

Conclusions

Due to the high prevalence rate can be recommended, in all hospitals and health centers, the damage have documented to record the full details of damage, damage items evaluating once a year by the infection control Committee. Slow down the aggressive methods as much as possible, creating a safe environment and increase in the ratio of employees to patients could reduce injuries. The employees ' continuing education, vaccination, the use of protective equipment and observe the principles of safety, periodic health examinations are considered to Hospital infection control Committee.

References

1. Mmwr morb mortal wkLy rep.2007 apr27, 56(16):393-7 non-fatal occupational injuries and illnesses-united states, 2004 Centers for disease control and prevention (cdc).
2. NIOSH Topic: Health care workers, cdc/NIOSH, http://www.cdc.gov/niosh/topics/health_care/ [Observed: 2011.10.12]
3. Do AN, Ciesielski CA, Metler RP, Hammett TA, Li J, Fleming PL. Occupationally acquired human immunodeficiency virus (HIV) infection: national case surveillance data during 20 years of the HIV epidemic in the United States. Infect Control Hosp Epidemiol. 2003 Feb; 24(2):86-96.
4. Leigh JP, Gillen M, Franks P, Sutherland S, Nguyen HH, Steenland K, Xing G: Costs of needle stick injuries and subsequent hepatitis and HIV infection. Curr Med Res Opin 2007; 23: 2093-105.
5. Ertem M, Dalar Y, Cevik U, Sahin H: Injury or body fluid splash incidence rate during three months' period in elective surgery procedures, at Dicle University Hospital, Diyarbakir, Turkey. Ulus Travma Acil Cerrahi Derg 2008;14: 40-5.
6. Zanni GR, Wick JY: Preventing needle stick injuries. Consult Pharm 2007; 22: 400-02, 404-6, 409.
7. Ramos-Gomez F, Ellison J, Greenspan D, Bird W, Lowe S, Gerberding JL: Accidental exposures to blood fluids among health care workers in dental teaching clinics: a prospective study. J Am Dent Assoc 1997;128: 1253-61.

8. Vahedi, M.S. Ahsan B. Ardalan M., Shahsavari S. et al., Prevalence and causes of needle stick injuries, in medical personnels of Kurdistan university's hospitals and dealing with such injuries due to contaminated sharp tools in 1383. *Scientific journal of Kurdistan university of medical sciences* 2006. 40: 43- 50.
9. Lee JM, Botteman MF, Xanthakos N, Nicklasson L. Needlestick injuries in the United States. Epidemiologic, economic, and quality of life issues. *AAOHN J.* 2005 Mar;53(3):117-33
10. *Mmwr morb mortal wkly rep.* 2007 Apr 27;56(16): 393-7 Nonfatal occupational injuries and illnesses—United States, 2004 Centers for Disease control and prevention (CDC)
11. Babamahmoodi F. Study of Hepatitis B and C in Razi and Hazrat Fatemeh Zahra Hospital staff of Mazandaran University of Medical Sciences in 1375. *Journal of Mazandaran University of Medical Sciences* 2000. 25: 25-9.
12. Salehi A. et al, Status of HIV infection, hepatitis B and C in the laboratory staff of hospital centers in Kermanshah, *Behbood journal*, 2002; 4(19):49-54
13. Jonaidi Jafari N. A. , Shasti M. , Izadi M. , Ranjbar R. , Ghasemi M. , Evaluation of frequency of Exposure to Medical Sharp Devices among Nurses of a University Hospital, *Journal of Military Medicine*, 2008; 10 (2) :119-128
14. Frommer W, Archer L, Boon B, Brunius G, Collins CH, Crooy P, et al. Safe biotechnology (5). Recommendations for safe work with animal and human cell cultures concerning potential human pathogens. *Appl Microbiol Biotechnol.* 1993 May; 39(2):141-7.
15. Schmid I, Nicholson JK, Giorgi JV, Janossy G, Kunkl A, Lopez PA, et al. Biosafety guidelines for sorting of unfixed cells. *Cytometry.* 1997 Jun 1; 28(2): 99-117.
16. Do AN, Ciesielski CA, Metler RP, Hammett TA, Li J, Fleming PL. Occupationally acquired human Immunodeficiency virus (HIV) infection: national case surveillance data during 20 years of the HIV epidemic in the United States. *Infect Control Hosp Epidemiol.* 2003 Feb; 24(2):86-96.
17. Guo YL, Shiao J, Chuang YC, Huang KY. Needle stick and sharps injuries among health-care workers in Taiwan. *Epidemiol Infect.* 1999 Apr; 122(2):259-65.
18. Ismail NA, Aboul Ftouh AM, El-Shoubary WH, Mahaba H: Safe injection practice among health-care workers in Gharbiya Governorate, Egypt. *East Mediterr Health J* 2007;13: 893-906.
19. Wicker S, Jung J, Allwinn R, Gottschalk R, Rabenau HF: Prevalence and prevention of needlestick injuries among health care workers in a German university hospital. *Int Arch Occup Environ Health* 2008;81: 347-54.
20. Zafar A, Aslam N, Nasir N, Meraj R, Mehradj V: Knowledge, attitudes and practices of health care workers regarding needle stick injuries at a tertiary care hospital in Pakistan. *J Pak Med Assoc* 2008;58: 57-60.
21. Abu-Gad HA, Al-Turki KA: Some epidemiological aspects of needle stick injuries among the hospital health care workers: Eastern Province, Saudi Arabia. *Eur J Epidemiol* 2001;17: 401- 7.
22. Azap A, Ergonul O, Memikoglu KO, Yesilkaya A, Altunsoy A, Bozkurt GY, Tekeli E: Occupational exposure to blood and body fluids among health care workers in Ankara, Turkey. *Am J Infect Control* 2005;33: 48-52.
23. Shariati B, Shahidzadeh-Mahani A, Oveysi T, Akhlaghi H: Accidental exposure to blood in medical interns of Tehran University of Medical Sciences. *J Occup Health* 2007;49: 317-
24. Mobasherizadeh S, Abne-Shahidi SA, Mohammadi NA, Abazari F: Intervention study of needle stick injury in Iran. *Saudi Med J* 2005;26: 1225-7.
25. Jennifer LC, Laurie KB, Eve JC, Adelisa LPA. Preventing percutaneous injuries among dental health care personnel. *J Am Dent Assoc* 2007; 138: 169-78.
26. Nakhaei M, Faragzadeh Z, Tabiei S, Saadatjoo S, Rad GM, Hoseini M. Evaluation of ergonomic position during work in nurses of medical and surgical wards in Birjand University of Medical Sciences hospitals. *Journal of Birjand University of Medical Sciences.* 2006;13(2):9-15.
27. Mosadegh ra. Relationship between nurses' knowledge about ergonomics and their job injuries. *Shahrekord University of Medical Sciences Journal* 2004; 6(3) :21 - 32.
28. Nasiri E, Vahedi M, Siamian H, Mortazavi Y, Jafari H. Needle Sticks Injury with Contaminated Blood in the Special Unit, S Staff. *Middle-East Journal of Scientific Research.* 2010;5(2):61-4.
29. Zamanian Ardakani Z, Kakooei H, Ayattollahi M, Karimian S, Nasle Seraji G. Mental health survey on shift work nurses in Shiraz province, Iran. *Journal of School of Public Health and Institute of Public Health Research.* 2008;5(4):47-54.