Study on Hepatitis B in Medical staff, Central Province, Islamic Republic of Iran

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Abstract

Background: to determine the prevalence of HBs Ag positive in staff of Amir Kabir Hospital (referral center) and compare with the results given by others.

Methods: 202 cases, working in Amir Kabir Hospital for more than 5 years were selected. ELISA Micro Plate Kit (Radim Company Italy) and Heponostrik kit were used for estimation. Positive samples were re-tested by the same method and confirm them by Iranian Blood Transfusion Organization, Arak branch.

Results: Our results showed that prevalence of infection to hepatitis B among Amir Kabir Hospital staff 2.9%. The ratio of male to female were 2.4. However out of positive cases 83.4% were male and 16.6% female. All the positive cases had the previous contact with the blood or discharges of patients and needle.

Conclusion: The results of present study showed increment in infection of male staff to HBsAg as compared to the female. The rate of positive HBs Ag was 2.9%, which showed increment as compared the results of 0.6-1.6% given by other.

Keywords: Hepatitis B, Medical staff, I.R. Iran.

Materials and Methods

A retrospective cross-sectional study was conducted on 202 staff, working for more than 5 years in different sensitive units in Amir Kabir Hospital such as operation hall, infectious ward, CCU, ICU, OPD Operation hall, Laboratory, emergency (Nurses, Technicians and Cattes) of these units were identified and participated in the study. Participant’s age was 25 to 55 years. All participants completed a consent form, and tested the study protocol was approved by the research ethics committee of Arak Medical Science University. After informing the staff about the aim of the study, two to three milliliter blood sample was collected from the vein and tested for HBsAg, HBsAb, HBeAg, HBe Ab. Estimation of HBs Ab and Hbs Ag, within first 24 hour assayed using ELISA micro plate kits (Radim company, Italy), and for HBeAb and Anti HBe, kit of Heponostrik were used. Positive samples were re-tested second time by the same method and confirm them by Iranian Blood Transfusion Organization, arak. Those staff how were not agree to participate in this study (21 person) were excluded.

Statistical Analysis:

Data were analyzed by SPSS software version 11.5. Data com-
parisons were performed using the Chi-square, Fisher's exact test and Student's t-test applied to test for significance at 95% confidence interval.

Results

Two hundred two workers were tested for more than 5 years in Amir Kabir Hospital were tested. There were 29.8 % male and 70.2 % female. Findings showed that 15.8% of cases were unvaccinated and 84.2 % were vaccinated (at least for two or three dose). 6 cases were HBs positive, that is prevalence of infection to hepatitis B among high risk personal in Amir Kabir Hospital in Arak, Central Province, was 2.9 %. Most of these positive cases were male (83.4%) and 16.6 % female. The male to female ratio was 2.4. Significantly prevalence of infection to hepatitis B in operation hall and cattes were higher than other ward staff. All positive cases 100% had the previous contact with the blood or discharges of patients and the needlestick. 50 % of HBs Ag positive cases had been unaware of previous hepatitis B vaccine. (Table 1)

| Risk factor                          | Total No. individuals and % | Total No. HBsAg + | Prevalence Percentage |
|-------------------------------------|-----------------------------|-------------------|-----------------------|
| Contact with patient blood or discharges | 177 (87.6%) | 6 | 2.9 |
| Needle injection                     | 147(72.8%) | 6 | 2.9 |
| Contact eye with patient blood or discharges | 68(33.6%) | 2 | 1 |
| Blood Transfusion                    | 3(1.5%) | 0 | 0 |
| Tattoo                              | 13(6.4%) | 1 | 0.5 |
| Sex                                 |               |             |                       |
| Male                                | 59(29.2%) | 5(83.4%) | 2.45 |
| Female                              | 143(70.8%) | 1(16.6%) | 0.55 |
| Vaccinated                          | 170(84.2%) | 3(50%) | 1.45 |
| Unvaccinated                        | 32(15.8%) | 3(50%) | 1.45 |

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References

[1].     Blasius KR, Neustein SM. An unexpected needlestick injury. Middle East J Anesthesiol.2012; 21(5):751-2.
[2].     Pruss-Ustun A, Rapiti E, Huin Y (2005). Estimation of the global burden of disease attributable to contaminated sharps injuries among health-care workers. Am J Ind Med.2005; 48(6):482–90.
[3].     Mohammad Hassan Kazemi Galougi . Evaluation of needle stick injuries among nurses of Khanevadah Hospital in Tehran. Iran J Nurs Midwifery Res.2010: 15(4): 172–177.
[4].     Jules L. Dienstag M.D. Hepatitis B Virus Infection, N. Eng. J. Medicine. 2008;359(14):1486-1500
[5].     Lavanchy D. Hepatitis B virus epidemiology, disease burden, treatment, and current and emerging prevention and control measures. J Viral Hepat; 2004;11: 97-107.
[6].     Malek zadeh R. Bill and Liver diseses, 7th chapter, Tehran , 1997;p129-169
[7].     Askarian M, Malekmakan L. The prevalence of needle stick injuries in medical, dental, nursing and midwifery students at the university teaching hospitals of Shiraz, Iran. Indian J Med Sci.2006; 60(6):227–32.
[8].     Shah SM, Bonauto B, Floey M .Workers compensation claims for needle stick injuries among health care workers in Washington state.1996-2000. Infect Control Hosp. Epidemiol.2005; 26(9):775-781
[9].     Mobarchizadeh S, Abne-Shahidi SA, Mohammadi NA,Abazari F. Intervention study on needle stick injury in Iran .Saudi Med. J.2005: 26(8):1225-1227.
[10].    Askarian M, Yadalollahi M, Kuochak F, Danaei M, Vakili V, Momeni M. Precautions for health care workers to avoid hepatitis B and C virus infection. Int J Occup Environ Med.2011; 2(4):191-8.
[11].    Phillips EK, Simwale OJ, Chung MJ, Parker G, Perry J, Jagger JC. Risk of bloodborne pathogen exposure among Zambian healthcare workers. J Infect Public Health. 2012;5(3):244-9.
[12].    Azap A, Egininil O, Memikoglou KO, Yelkikaya A, Alrunsoy A, Buzkurt YG, Tekell E. Occupational exposure to blood and body fluids among health care workers in Ankara, Turkey. Am J. Infect. Control.2005; 33; 48-52
[13].    Jahan S. Epidemiology of needlestick injuries among health care workers in a secondary care hospital in Saudi Arabia. Ann Saudi Med.2005;25:233-238
[14].    Pourmaras S, Tsakris A, Mandraveli K, Faitatzidou A, Douboyas J, Tourkantonis A. Reported needle stick and sharp injuries among health care workers in a Greek general hospital. Occup. Med. (lond).1999; 49; 423-426
[15].    Pousjol I, Floret N, Servat –Delmash A, Marquain S, Lapchekes S, and Antonia D. Hepatitis B virus transmission from nurse to patient, France. Euro-surveillance, 2008: vol 13, issue 21
[16].    Ahmad Zadeh MZ. Study on prevalence of HBsAg in personnel of Imam

Conclusions

Exposure to blood and other potentially infectious body fluids have, for long time been recognized as a potential health hazard in health care personnel. On the basis of the present study, the rate of positive HBs Ag was 2.9 %, which showed increment as compared the results of 0.6-1.6% given by other in I.R. Iran[16-18]. This difference may be due to nature of hospital which contents Eye, ENT, Cardiology, and pediatric wards. Injuries from sharp objects among staff are widespread occupational hazard. In this study sex and specific wards were most important risk factors for infected personnel. 50% of HBs positive in our investigation had not been vaccinated previously. So an effective educational program and an establishment of surveillance system for registering and management of occupational exposure in hospital are needed. Even today we observed staff unaware of their vaccination [18-20]. So implementation of awareness strategies is urgent and the need of boosters among health care workers to be essential.
Khomeini Hospital, Sages, 1999-2000; Kurdistan Medical Science J. 2000; 5(11):78-79

[17]. Lotfi R, Gashtrasb A. Needle stick and sharps injuries and its risk factors among health center personnel (Astara: Iran, 2006) Journal of Babol University of Medical Sciences. 2008; 10(4):71-7.

[18]. Nasiri E, Mortazavi Y, Mortazavi Y, Siamian H, Siamian H, Shaaban khani B. The prevalence and study of the rate of needle stick injuries infected by blood in staffs of special departments of teaching and non-teaching hospitals of Mazandaran province in 2003-2005. Iranian Journal of Infectious Diseases and Tropical Medicine; 2005 : (10):29–41.

[19]. Hadadi A, Afhami S, Karbakhsh M, Esmailpour N. Occupational exposure to body fluids among health care workers, a report from Iran. Singapore Med. J. 2008: 49(6):492-496

[20]. Ganczak M, Bohatyrewic A, Szych Z, Blatecki P. Markers of hepatitis B, C and HIV among orthopedic patients and staff at a Polish University hospital. (abstract in English). Chir Narzadow Ruchu Ortop. Pol. 2008: 73(2):83-88