

A KAP Study of Needle Prick Injury among Healthcare Professionals in Santhiram Medical College-Nandyal

Vijaya Vishnu Gunturu¹, M. A. Mushtaq Pasha², Afsar Fatima³, Isaac Ebenizer³

ABSTRACT

Introduction: Before 1980, needle stick injury prevention was not as much of an issue (pre-AIDS). In the late 1980's the Centers for Disease Control and Prevention (CDC) introduced "Universal Precautions" to protect healthcare workers from blood borne pathogens. In 1991, the Occupational Safety and Health Administration (OSHA) published its rule "Occupational Exposure to Blood borne Pathogens" to further protect healthcare workers. While as many as 20 blood borne pathogens can be transmitted through accidental NSI's, the potentially life threatening are HIV, hepatitis B virus (HBV) and hepatitis C virus (HCV). Objectives is to know the knowledge, awareness, and how they are practicing about needle stick injuries among medical faculty, PG, interns, nursing staff, lab technicians and class IV.

Material and Methods: A cross sectional study with sample size of 153 was conducted for a period of one month (Dec 15-Jan 14). Each respondent were interviewed with pretested and semi structured questionnaire.

Results: 21.6% are medical faculty, 24.2% were post graduates, 3.9% were interns, 24.2% were nurses, 13.07% were lab technicians and 13.07% were class IV employees. 99.2% class IV employees said they have no idea. 25.2% of medical faculty, 28.2% of P.G's, 4.6% of interns, 26.7% of nurses, 14.5% of lab technicians said needle prick transmits HIV. 27.7% of medical faculty, 30.2% of post graduates, said hepatitis-B, 9.09% of total said tetanus, 50% of nurses and lab technicians said tuberculosis. 22.5% had prick before use, 33.4% had during use, 17.1% had after use and before disposal, 3.6% had when concealed in bed linen, 15.3% had while recapping and 8.1% had while cleaning.

Conclusions:- 86.3 % are aware of needle stick injuries transmits diseases. Whereas only class IV (75%) are unaware that diseases are transmitted through needle stick injury. Nurse's (32%) are more prone for needle prick when compared to other group.

Keywords: Needle stick injury, health care workers, transmission of disease.

on December 2006, according to UNAIDS 39 million people worldwide are living with HIV.

Needle stick injuries contaminated with dried blood on the needles also causes infection specially HBV. HIV and HCV infection occurs with fresh blood only. Very few reports on NSIs reports are available in India.

Objective of the research was to know the knowledge, awareness, and how they are practicing about needle stick injuries among medical faculty, PG, interns, nursing staff, lab technicians and class IV.

MATERIAL AND METHODS

It's a cross sectional study with study sample 153. Study was conducted for a period of one month (15th December 2014-14th January 2015). Each respondent were interviewed with pretested and semi structured questionnaire.

RESULTS

99.2% class IV employees said they have no idea. 25.2% of medical faculty, 28.2% of P.G's, 4.6% of interns, 26.7% of nurses, 14.5% of lab technicians said needle prick transmits HIV. 27.7% of medical faculty, 30.2% of post graduates, said hepatitis-B, 9.09% of total said tetanus, 50% of nurses and lab technicians said tuberculosis.

47.6% of medical faculty, 41.9% of P.G's, 50% of interns,

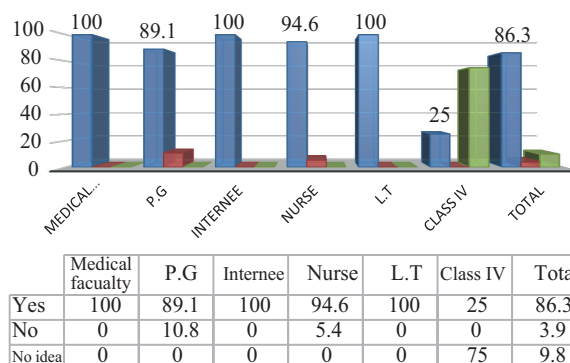


Figure-1: Needle prick transmits diseases

INTRODUCTION

A needle stick injury is the penetration of skin through a needle or other sharp object, which were in contact with blood, tissue, or other body fluid before penetration. NSIs are associated with various health hazards for HCWs; the most important of which is the risk of getting fatal diseases such as Hepatitis B and C (HBV, HCV) and Human Immunodeficiency Virus (HIV), Zika. Transmission of at least 20 different pathogens by injuries due needle sticks has been reported.

The risk after percutaneous exposure varies. which can be 30% HBV, 3-4% for HCV, 0.3% for HIV Approximately 350 million people are lifelong carriers of HVB due to this exposure and 170 million are HCV carriers in the world. And as

¹Post Graduate, ²Professor and Head, ³Professor, Department of Community Medicine, Santhiram Medical College, Santhiram Medical College, Nandyal, Kurnool Dist, A.P., India

Corresponding author: M.A. Mushtaq Pasha, Professor And Head, Department Of Community Medicine, Santhiram Medical College, NH-18, Kurnool Road, Nandyal-518501, Kurnool Dist, A.P., India

How to cite this article: Vijaya Vishnu Gunturu, M. A. Mushtaq Pasha, Afsar Fatima, Isaac Ebenizer. A KAP study of needle prick injury among healthcare professionals in santhiram medical college-nandyal. International Journal of Contemporary Medical Research 2016;3(3):848-851

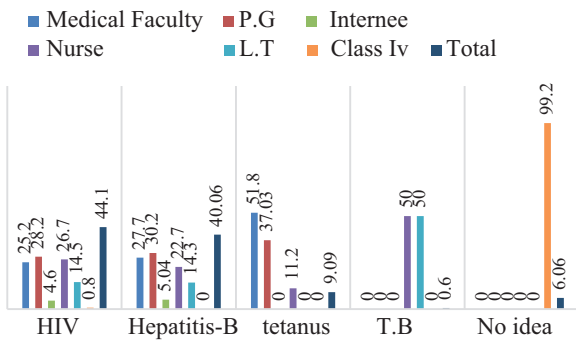


Figure-2: Diseases caused by needle prick

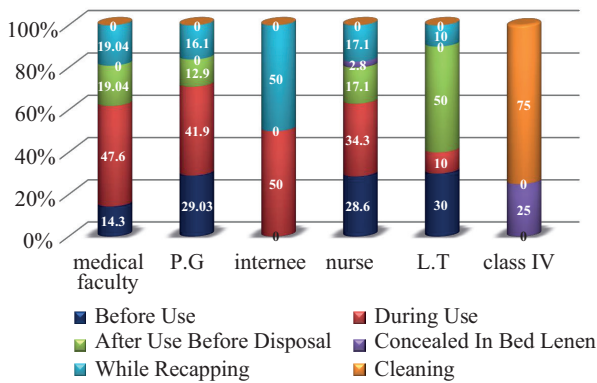


Figure-3: When have you exposed to needle prick

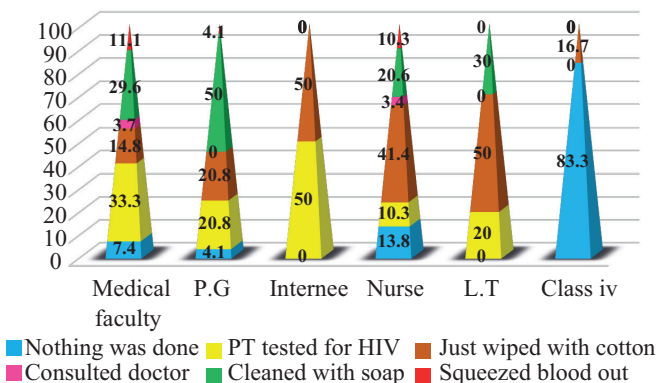


Figure-4: What have you done immediately after the prick

34.3% of nurses and 10% of lab technicians got prick during use. 14.3% of medical faculty, 29.03% of P.G's, 28.6% of nurses, 30% of lab technicians got prick before use. 50% of lab technicians got prick after use and before disposal. 75% of class IV got prick while cleaning.

83.3% of class IV employees and 50% of post graduates have done nothing after prick. 50% of L.T and interneers 41.4% of nurses just wiped with cotton after prick. 33.3% of medical faculty, 50% of interneers and 20.8% of post graduates have send patient blood sample for HIV test.

DISCUSSION

In present study 99.2% class IV employees said they have no idea. 25.2% of medical faculty, 28.2% of P.G's, 4.6% of interns, 26.7% of nurses, 14.5% of lab technicians said needle prick transmits HIV. 27.7% of medical faculty, 30.2% of post graduates, said hepatitis-B, 9.09% of total said tetanus, 50% of nurses and lab technicians said tuberculosis. The KAP study at Aga Khan Hospital, Karachi in which

overall knowledge regarding the potential transmission of Hepatitis B, C and HIV was high among the participants.¹⁷ 47.6% of medical faculty, 41.9% of P.G's, 50% of interns, 34.3% of nurses and 10% of lab technicians got prick during use. In a study conducted by Alison E. Heald et. al out Of 221 respondents, 57 (26%) reported never having had a needle stick, while 164 (74%) reported at least one needle stick injury with a suture or hollow-bore needle.³ The predominance of injuries among nurses is a common feature in studies around the world.²⁰⁻²⁴ 14.3% of medical faculty, 29.03% of P.G's, 28.6% of nurses, 30% of lab technicians got prick before use. 50% of lab technicians got prick after use and before disposal. 75% of class IV got prick while cleaning. In a study conducted by Alison E. Heald et.al 35 of 61 (57%) surgical residents, while recapping needles was the cause in 36 of 96 (38%) non-surgical residents.³ 15.1% of medical faculty, 16.2% of P.G's, 5.4% of nurses had many times needle prick. 24.2% of medical faculty, 16.2% of P.G's, 35.1% of nurses, 20% of lab technicians and class IV employees had 2 to 5 times needle prick. In a study conducted by Wickers et.al study, 31.5% (n = 503/1598) of participant healthcare workers had sustained at least one needle stick injury.⁴ In a study conducted by Rahul sharma et. al⁵ 79.5% of the workers reported having received a NSI in their career, which is a concerning number. Needle stick injuries indeed are among the most important occupational injuries for nurses. The reported incidence of NSIs in USA is 49% in nurses 10% in physicians.¹⁵ A study in rural North India too had found a similar prevalence of NSI ever in working lifetime to be 73%.⁶ 22.5% had prick before use, 33.4% had during use, 17.1% had after use and before disposal, 3.6% had when concealed in bed Lenin, 15.3% had while recapping and 8.1% had while cleaning. In a study conducted by Janine Jagger et al One third of the injuries were related to recapping. In a study conducted by Fredrich M et.al recapping of used needles, cleaning after patient care were related to about 13% of the injuries each.² Several other studies too have consistently found that a very high proportion of HCWs have received needle stick injuries while performing their work, both in India and internationally.⁷⁻¹² In a study conducted by muralidhar et.at The practice of recapping needles after use was still prevalent among HCWs (66.3%). Some HCWs also revealed that they bent the needles before discarding (11.4%).¹³ Competing hazards were often cited as reasons for recapping.¹ In a study conducted byJanine Jagger et.al One third of the injuries were related to recapping.¹⁴ According to a study conducted in Mulago, national referral hospital in Kampula, Uganda, the most important risk factors were recapping needles and handling needles without using gloves.¹⁶ a study carried out at Aga Khan Hospital, Pakistan which reported that more than half of the injuries (52.8%) occurred while drawing the blood samples or injecting the medicine.¹⁷ 83.3% of class IV employees and 50% of post graduates have done nothing after prick. 50% of L.T and interneers 41.4% of nurses just wiped with cotton after prick. 33.3% of medical faculty, 50% of interneers and 20.8% of post graduates have send patient blood sample for HIV test. 38.08% of medical faculty, 36.4% of P.G's, 33.3% of interns and lab

technicians has blood test after needle prick, whereas rest haven't and 100% of class IV employees have not undergone any blood test. In the study conducted by et.al has revealed that after getting stuck by a contaminated needle 92% of the nurses cleaned the wound with a spirit swab, 87% washed the area with soap and water and 75% applied a readily available bandage. In another study it is reported that needle stick injuries occurred during all work shifts and all the nurses self-treat and self-medicated their wounds while a small minority consulted the physicians.¹⁹ In a study conducted by Rahul sharma et.al study while 60.9% washed the site of injury with water and soap, a matter of concern is that 14.8% did nothing following their most recent NSI Very few of the NSIs get reported to the health care system.⁵ In a study conducted by Alison E. Heald et.al Only 30 (19%) of 157 injuries were reported to the personnel health service.³

CONCLUSION

In our study 86.3 % are aware of needle stick injuries transmits diseases. Whereas only class IV (75%) are unaware that diseases are transmitted through needle stick injury Nurse's (32%) are more prone for needle prick when compare to other group. 34% have experienced NSI during use. 0.6% of nurses and L.T said TB can be transmitted through needle prick. 95% of Class IV staff are unaware of preventive and prophylaxis measures. 31.4% said HIV and 27.4% said hepatitis can be prevented by prophylaxis. 89.7% are aware, but only 11.7% have taken prophylaxis for needle prick. 92% took prophylaxis on doctor's advice. 44% know about prophylaxis is known to most through doctors and 30% through books. CRRIs and nurses had blood test after one day where as doctors and PGs had done after one week.

RECOMMENDATIONS

Health education should be given to nurses, L.T and class IV staff repeatedly and up dated periodically for prophylactic measures to be taken while handling hospital waste or needle stick usage. Regular CME's should be conducted to doctors, PGs, and CRRIs for adaptation of prophylactic measures. Following risk assessment, the appropriate use of personal protective equipment (PPE) is advised at all times when sharps injuries might occur. Actions can be taken to prevent avoidable sharps injuries (e.g. no resheathing of needles, disposal of sharp at point of use, appropriate use of approved puncture-resistant sharps containers). Conduct a rigorous evaluation of needlestick-prevention devices to determine their effectiveness, acceptability to practitioners, impact on patient care and cost benefit prior to widespread introduction. To prevent avoidable sharps injuries, healthcare workers are advised not to resheath needles. Used sharps should be disposed of immediately after use to eliminate the risk of potential injury

REFERENCES

1. Rates of Needle-Stick Injury Caused by Various Devices in a University Hospital Janine Jagger, M.P.H., Ph.D., Ella H. Hunt, R.N., Jessica Brand-Elnaggar, B.A., and Richard D. Pearson, M.D. *N Engl J Med.* 1988; 319:284-288.
2. Fredrich M. Nsubuga, Maritta S. Jaakkola. Needle stick injuries among nurses in sub-Saharan Africa. *Tropical Medicine and International Health.* 2005;10:773-781.
3. Alison E. Heald, David F. Ransohoff. Needlestick injuries among resident physicians. *Journal of General Internal Medicine.* 1990;5:389-393.
4. Needlestick injuries among health care workers: occupational hazard or avoidable hazard? Wicker S1, Ludwig AM, Gottschalk R, Rabenau HF. *Wien Klin Wochenschr.* 2008;120:486-92.
5. Study of Prevalence and Response to Needle Stick Injuries among Health Care Workers in a Tertiary Care Hospital in Delhi, India, Rahul Sharma, SK Rasanina, Anita Verma, and Saudan Singh, *Indian J Community Med.* 2010;35:74-77.
6. Kermod M, Jolley D, Langkham B, Thomas MS, Crofts N. Occupational exposure to blood and risk of bloodborne virus infection among health care workers in rural north Indian health care settings. *Am J Infect Control.* 2005;33:34-41.
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;60:227-32.
8. Whitby RM, McLaws ML. Hollow-bore needlestick injuries in a tertiary teaching hospital: Epidemiology, education and engineering. *Med J Aust.* 2002;177:418-22.
9. Ebrahimi H, Khosravi A. Needlestick injuries among nurses. *J Res Health Sc.* 2007;7:56-62.
10. Makary MA, Al-Attar A, Holzmüller CG, Sexton JB, Syin D, Gilson MM, et al. Needlestick injuries among surgeons in training. *N Engl J Med.* 2007;356:2693-9.
11. Singru SA, Banerjee A. Occupational exposure to blood and body fluids among health care workers in a teaching hospital in Mumbai, India. *Ind J Comm Med.* 2008;33:26-30.
12. Pournaras S, Tsakris A, Mandraveli K, Faitatzidou A, Douboyas J, Tourkantonis A. Reported needlestick and sharp injuries among health care workers in a Greek general hospital. *Occup Med (Lond)* 1999;49:423-6.
13. Needle stick injuries among health care workers in a tertiary care hospital of India. Muralidhar S1, Singh PK, Jain RK, Malhotra M, Bala M. *Indian J Med Res.* 2010;131:405-10.
14. Janine Jagger, Ella H. Hunt, Jessica Brand-Elnaggar, Richard D. Pearson. Rates of Needle-Stick Injury Caused by Various Devices in a University Hospital. *N Engl J Med.* 1988;319:284-288.
15. Gillen M, McNary J, Lewis J, Davis M, Boyd A, Schuler M, et al. Sharps related injuries in California health-care facilities: pilot study results from the Sharps Injury Surveillance Registry. *Infect Control Hosp Epidemiol.* 2003;24:113-21.
16. Nsubuga FM, Jaakkola MS. Needle stick injuries in Sub-Saharan Africa. *Trop Med Int Health.* 2005;10:773-81.
17. Zafar A, Aslam N, Nasir N, Meraj R, Mehraj 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.
18. Iram Manzoor, Seema Daud, Norren Rahat Hashmi, Hira Sardar, Mirza Shaharyar Babar, Abdul Rahman, Madiha Malik. Needle stick injuries in nurses at a tertiary health care facility. *J Ayub Med Coll Abbottabad.* 2010;22.
19. Chew TT, King YL. Accidental Needlestick Injuries

- among Nurses in a Regional Hospital in Hong Kong. *J Hong Kong Med Assoc.* 1987;39:33–4.
20. Rampal L, Zachariah R. Needle stick and sharp injuries and Factors associated among health care workers in a Malaysian Hospital. *Eur J Soc Sci.* 2010;13:354-62.
 21. Ghofranipour F, Asadpour M, Ardebili H. Needle sticks/ Sharp injuries and determinants in nursing care workers. *Eur J Soc Sci.* 2009;11:191-8.
 22. Chakravarthy M, Singh S, Arora A, Sengupta S, Munshi N. The Epinet data of four Indian hospitals on incidence of exposure of healthcare workers to blood and body fluid: A Multicentric prospective analysis. *Indian J Med Sci.* 2010;64:540-8.
 23. Sumathi M, Prashant Kumar S. Needle stick injuries among healthcare workers in tertiary care hospital of India. *Indian J Med Res.* 2010;131:405-10.
 24. Goswami M, Patel P. Needle stick and sharp instruments injuries among health care providers at cardiology Institute, Ahmedabad. *Nat J Commun Med.* 2010;1:114-7.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 31-01-2016; **Published online:** 22-02-2016