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A Study on Awareness of Needle sticks injury in students undergoing paramedical course.

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Abstract:
Background*: Needle stick injuries(NSI) and sharp injuries present the single greatest occupational hazard to health care workers. Diseases of primary significance to health care workers are the hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV). The most common procedure was blood collection followed by surgical procedures.*
Materials and Methods*: Seventy eight students of paramedical course participated in the study. A structured questionnaire was used. All the students answered the questionnaire. Result: Regarding NSI the students had adequate knowledge.*
Conclusion*: Prophylaxis and Post exposure prophylaxis regarding NSI needs to be included in the teaching curriculum of the students undergoing paramedical coarse.*
Keywords*: Needle stick injuries(NSI), Students, paramedical coarse, Post exposure prophylaxis.*

I. Introduction

A needle-stick injury is a percutaneous piercing wound typically set by a needle point, but possibly also by other sharp instruments or objects also. Needle-stick and sharp injuries present the single greatest occupational hazard to health care workers. [1] There are more than 20 blood-borne diseases, but those of primary significance to health care workers are the hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV). [2] The World Health Report 2002 estimates that 2.5% of HIV, 40% of HBV and HCV cases among HCWs worldwide is the result of occupational exposures. [3] Needle stick injuries may occur not only with freshly contaminated sharps, but also after some time, with needles that carry dry blood. While the infectiousness of HIV and HCV decrease within a couple of hours, HBV remains stable during desiccation and infectious for more than a week. According to the Centers for Disease Control and Prevention, approximately 384,000 percutaneous injuries occur annually in US hospitals, with about 236,000 of these resulting from needlesticks(NSI) involving hollow-bore needles [1]. There are few reports on NSIs from India, [2],[3],[4],[5] and with limited data, it is not possible to estimate an annual incidence. . The majority of the devices responsible for the NSIs are hollow-bore needles (*n* = 230, 77.7%), with solid needles accounting for 62 (20.9%) and others for 1.4%. Evaluation of the kind of activity during which the NSI occurred showed that most occurred during procedures (*n* = 172, 58.1%) like injection administration, checking blood sugar and intravenous cannulation. The most common procedure was blood collection (n=102, 59.3%), followed by surgical procedures (22%). Approximately 8% were during checking blood sugar and 3.5% each were contributed by injection administration, intravenous cannulation and others. A large proportion occurred because of incorrect handling such as recapping (*n* = 25, 8.5%) and improper disposal of the sharps (*n* = 55, 18.6%) and overflowing containers, passing of the device to others, etc., which accounted for 44 (14.7%) of the NSIs[9] . Needlestick injury is a significant problem in general practice and exposes general practitioners , practice nurses and laboratory technicians to a serious risk of infection from blood-borne transmissible agents..Moreover, all patients should be considered to pose a potentially high risk of infection. Recommended precautionary measures should be followed at all times. [4]. This study was undertaken to assess the knowledge and awareness of students undergoing paramedical course at a tertiary medical care institution. The paramedical students handle hollow-bore needles. Their work involves procedures like drawing of blood , checking blood sugar and administration of injections for diagnostic purposes. This study was planned to identify the needs of these students for inclusion in the teaching curriculum . The needs may be the prevention of NSIs, Practices to be followed after a NSI and prophylaxis to be taken for diseases transmitted by NSIs in case of occurrence.

II. Materials And Methods

This study was undertaken at a tertiary medical care institution.. After obtaining the permission from institutional ethics committee, the study was under taken. The objective of the study was to assess the knowledge and awareness for needlestick injury among students of paramedical course.

The subjects were informed in detail about the design and purpose of the study. Anonymity of the participants was maintained throughout the study. Seventy eight students of paramedical course participated in the study. A structured questionnaire was used. The students were asked to answer the questionnaire, without it having an effect on their daily academic activity. All the students answered the questionnaire which was analysed using suitable tabulation using excel sheets and percentages were analysed.

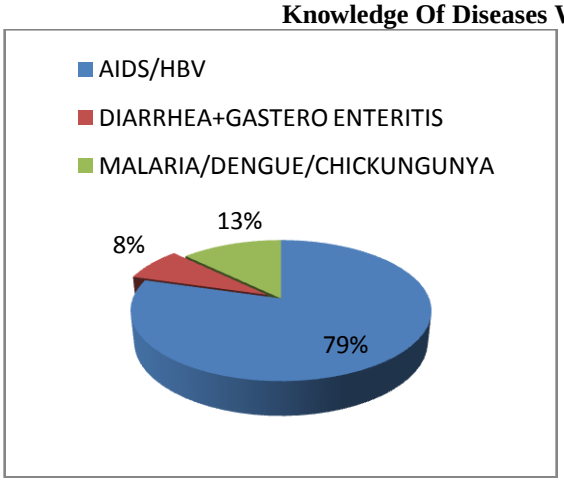
III. Results :

The study population comprised of 78 students including Male and Female undergoing paramedical Course at a tertiary medical care institution. The students were informed that this study was being done to know the knowledge and awareness of Needle stick injuries (NSI).

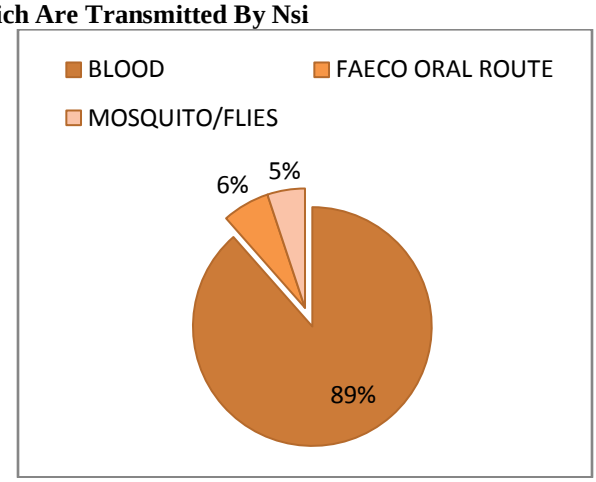
In the study population 91%,(71) knew the correct meaning NSI and 6.4% ,(5) assumed it is an injury sustained while handling blood products. Regarding their attitude to report to in-charge Medical Officer 89.8%, (70) of them would report and 10.3%,(8) would inform their friends and 2.6%,(2) would not report. After reporting to the concerned persons, 74.4%,(58) would take prophylaxis after the results of diagnostic tests and 23%,(18)would take immediately as soon as the Medical Officer advises. About reducing the occurrence of NSI by wearing gloves, 64.1%,(50) were aware and 30.8%,(24) were not aware. 88.5%,(69) students were aware that NSI could transmit diseases transmitted by blood and 79.5%,(62) students knew that HIV and HBV could be transmitted by NSI.

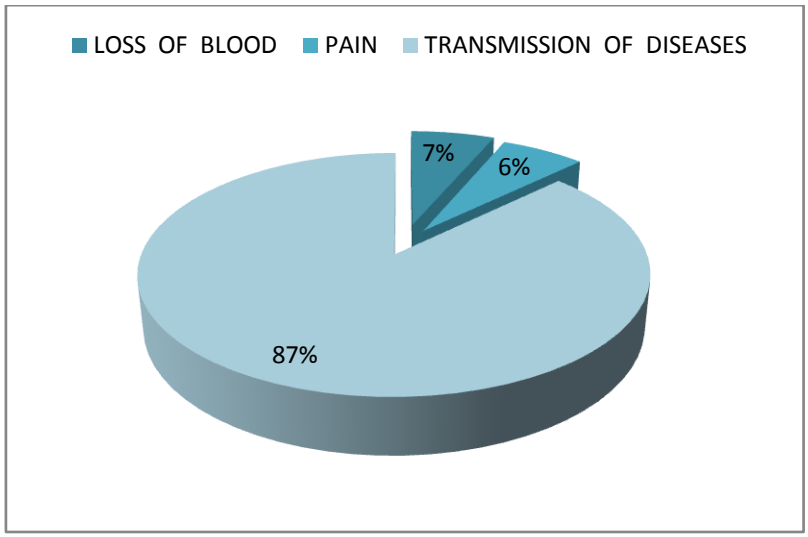
Among the students, 85.9%,(67) had knowledge that Prophylaxis can prevent diseases transmitted after an NSI and 3.9%,(3) did not have knowledge. Regarding the awareness of prevention of HBV by vaccination, 89.8%,(70) were aware and 6.4%,(5) were not aware. NSI would have a psychological effect on 53 (68%) and would not have an effect on 25.6%(20) students. After a NSI, the practice would be to wash the fingers with soap water and antiseptic in 68%(50) and "squeeze cum wash injury site "in 35.9%(28). All the students in the study population were of the opinion that the students should be sensitized about prevention and post - exposure prophylaxis after NSI.

Knowledge Of Diseases Which Are Transmitted By Nsi

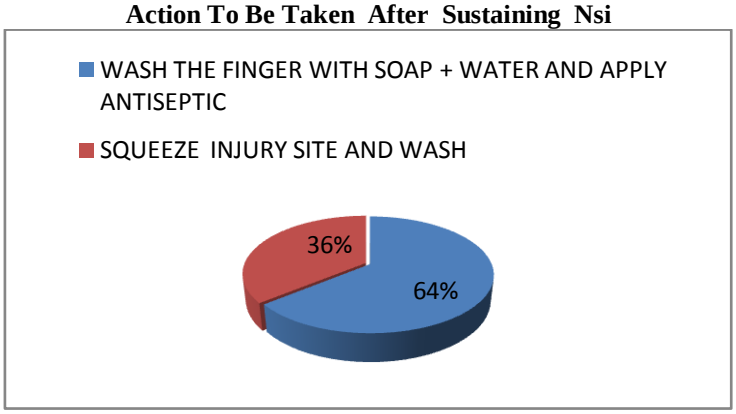


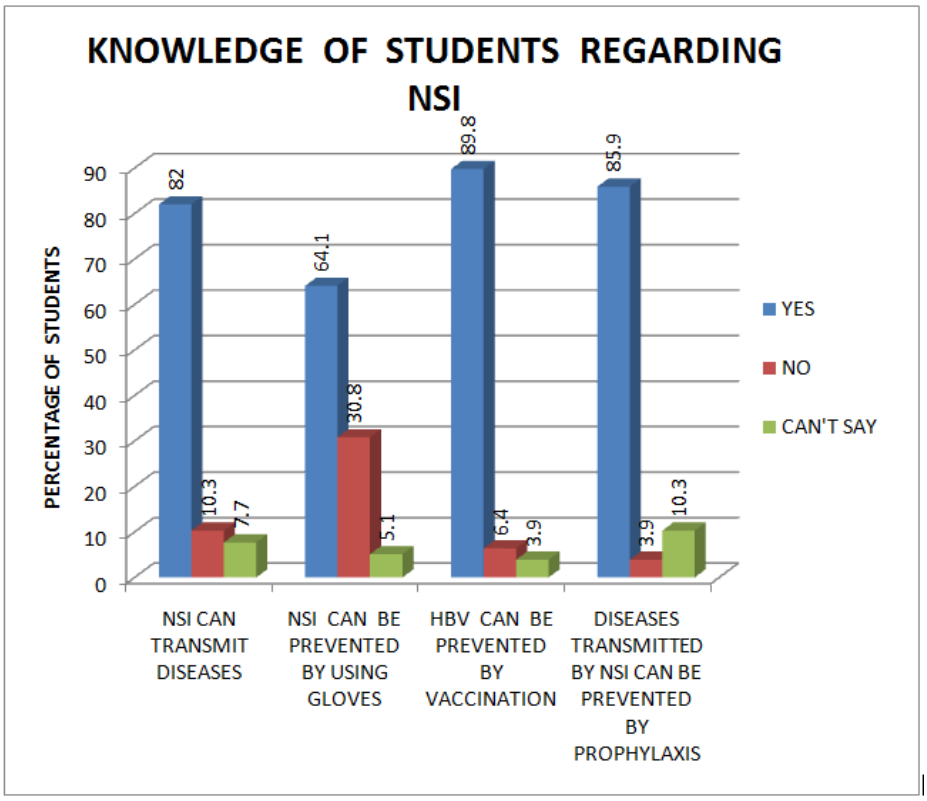
Type of fear caused by NSI

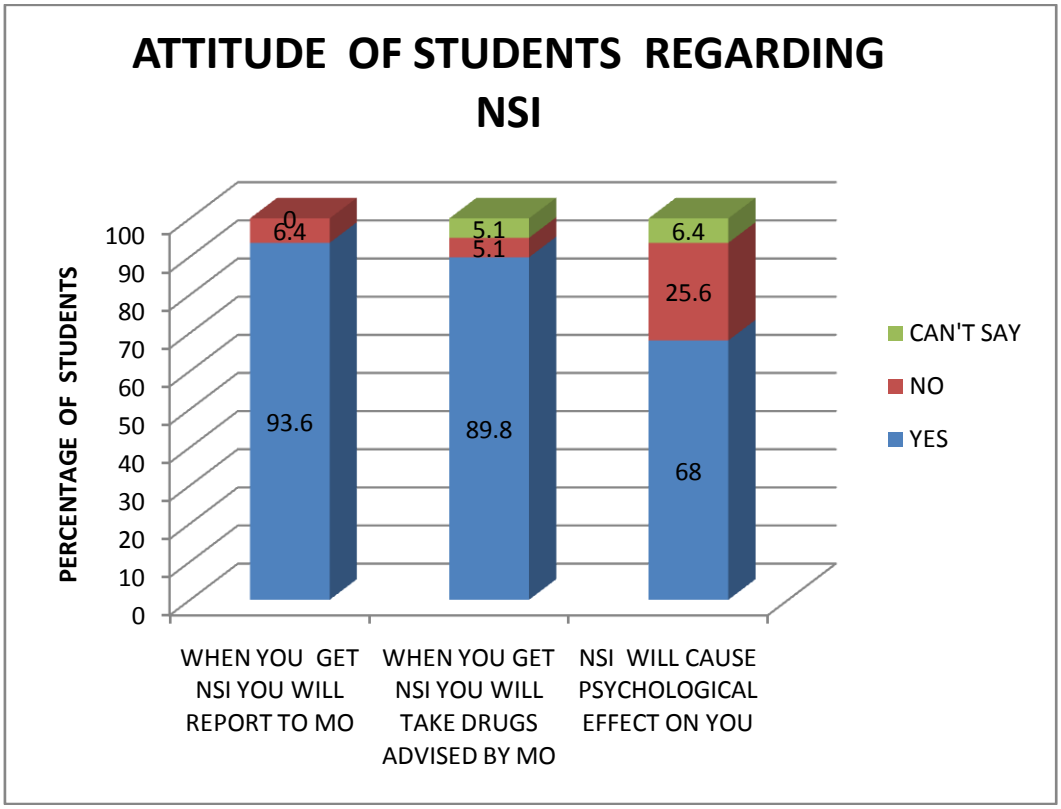


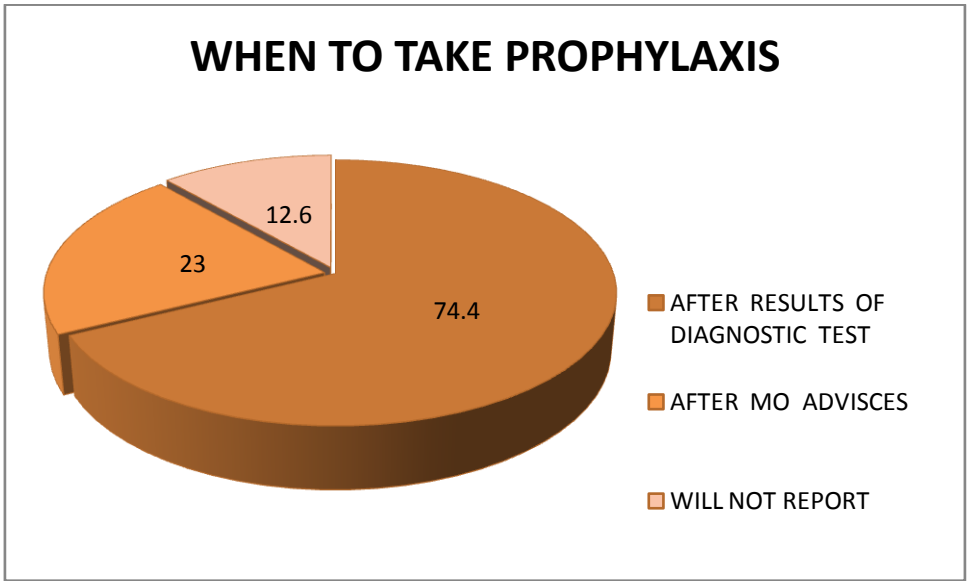


Action To Be Taken After Sustaining Nsi









IV. Discussion

Many studies have been conducted to study the knowledge, attitude and practices of NSI in Medical and Dental Professionals, Under Graduate Medical and Dental students, Nurses, Ward boys and sweepers. On detailed internet search, KAP studies of NSI in Lab technicians were less. NSI are a common event in the health care environment. NSI commonly occur during drawing blood, checking Blood Sugar, administering an intramuscular or intravenous drugs involving sharps. Paramedical course students after completion of their course work as Laboratory Technicians in Hospitals and Diagnostic Centres. The work of Laboratory Technicians involves drawing blood, checking Blood Sugar, administering injections, handling blood and tissues for preparation of slides in Pathology and Microbiology Laboratories.

This study was undertaken to assess the knowledge and attitude of students undergoing Paramedical course in our College. The study findings will bring out the gaps and enable us include them in the teaching

curriculum. The findings can be used for counseling about the degree of risk associated with NSI and type of exposure. This study showed an overall adequate knowledge of paramedical students regarding the diseases transmitted by NSI and prevention of HBV by vaccination. The study showed that 87% of students have fear of transmission of disease compared to 6.4% who showed fear of loss of blood. But only 23% would take prophylaxis after NSI immediately after the Medical Officer advises and 74.4% would wait for diagnostic tests. NSI would have a psychological effect on 68% of students only.

A NSI is the most important risk factor for transmission of blood borne diseases such as Hepatitis B, Hepatitis C and the Human Immunodeficiency Virus (HIV). The risk of transmission from patient to the health care worker is as follows: Hepatitits : Hepatitits C (3%), Hepattitis B (30%) and HIV (0.3%) which depends on viral load of the patient[6]. At least 20 different pathogens are known to have been transmitted by NSI.

Housekeeping and Laboratory Personnel experienced the highest incidence of NSI, but 60% of all injuries occurred in nursing personnel. Most injuries that paramedical students would get during blood sugar monitoring and intravenous cannulation can be prevented by the use of safety devices such as special cannula and lancet pens for blood sugar estimation[9]. Needle recapping and failure to place used needles in approved sharps container can also result in NSI. HBV infection can be prevented by vaccination but prevention of exposure to HIV and HCV is the only way of prevention of HIV and HCV infection.

V. Conclusion

In this study the students have an adequate knowledge regarding the occurence and prevention of NSI. Prophylaxis that needs to be taken after a NSI has to be included in the teaching curriculum of the students from the first year of the coarse,to enable the students to follow them. Counselling needs to be offered to the students so that they don't have psychological stress,to enable them to work without fear.

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Conflict of interest: None

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