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Knowledge about Needle - Stick Injury among Doctors in the Emergency Department in Ibrahim Malik Hospital in Sudan

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Abstract: ***Background: Needle - stick injury is common among health care workers worldwide. Each year a significant number of injuries occur, despite the fact that it can be prevented. Method: This is a cross sectional study that aims to assess the knowledge of the doctors regarding the causes, management and post exposure prophylaxis following the injury. Results: About 92.2% (n=354) believed that recapping the needle is the main cause of needle - stick injury. Failing to dispose the needle properly ranked second to recapping the needle as a cause of injury.63.3% (n=243) answered that the site should be washed with soap and water.71.6% (n=275) believed that those who received hepatitis b vaccine must receive the vaccine again following an injury. Conclusion: Training regarding needle - stick injury management is highly recommended to increase knowledge of doctors in this subject.***

Keywords: needle - stick injury, healthcare workers, injury prevention, post - exposure prophylaxis, doctor training

1. Introduction

Needlestick injury is common among health care workers worldwide. Each year about 2 million injuries are believed to occur despite the fact that needlestick injury can be preventable, it poses a high risk for transmission of blood borne viruses. Needlestick injuries are occupational risk since it leads to transmission of highly infectious viruses. HBV risk of transmission is between 6 - 30%. HCV risk of transmission is between 3 - 10%, while HIV risk is less than 0.3%.

Health care workers must follow a number of steps to prevent needlestick injury;

1) Safe handling and disposal with any procedure using needles.
2) Dispose of used needles promptly in appropriate sharps container.
3) Report needlestick injury immediately to ensure receiving appropriate care and follow up.
4) Participate in training for blood borne infection prevention.

Needlestick injury poses sever emotional stress even when no infection is transmitted. It is particularly stressful when it involves exposure to HIV. Those who receive PEP for HIV must be followed up at 6 and 12 weeks after treatment. HBIG must be given within 48 hrs, but can be given up to a week following injury.

Needlestick injury can occur due to a number of causes;

1) Recapping a used needle.
2) Movement of patient during injection.
3) Transferring body fluids between containers.
4) Failing to dispose needles properly in the safety box.

Following any needlestick injury the area of injury must be allowed to bleed and washed with soap and water. Those who were previously immunized against hepatitis b must receive a booster dose, while those who were previously infected must not receive any vaccination.

2. Methodology

This is a descriptive cross sectional study, the sample was selected using simple random sampling. The data was collected using a questionnaire. A sample size of 384 was selected with a confidence interval of 95% and expected prevalence of 0.5%. The questionnaire contained questions to assess knowledge of doctors in emergency department about needlestick injury.

The data was collected from doctors who worked only in the emergency department in Ibrahim Malik Hospital, because there are other departments in the same hospital but they were not included in this study.

3. Results

Table 1 shows the demographics characteristics of the studied doctors:

Table 1: Demographic characteristics of the doctors:

Age:	Number (%)
25 - 30	228 (59.3%)
30 - 35	148 (38.6%)
35+	8 (2.1%)
Sex:	
Male	185 (48.2%)
Female	199 (51.8%)
Years of experience:	
0 - 1	21 (5.5%)
1 - 5	278 (72.4%)
5+	85 (22.1%)
Received any training before:	
Yes	17 (4.4%)
No	367 (95.6%)

Table 2: Knowledge of doctors regarding needle stick injury:

Needle stick injury occurs due to:	Number (%)
Sudden patient movement during injection	66 (17.2%)
Recapping used needle	354 (92.2%)
Transferring body fluids between containers	65 (16.9)
Failing to dispose needles properly	120 (31.3%)
The rate of transmission following needle stick injury is higher in:	
Hepatitis B	230 (59.9%)
Hepatitis C	95 (24.7%)
HIV	59 (15.4%)
Following injury the site should be:	
Washed with soap and water	243 (63.3%)
Washed with antiseptic solution	170 (44.3%)
Should be allowed to bleed	20 (5.2%)
Should be scrubed	2 (0.5%)
Should the injury be reported:	
Yes	382 (99.5%)
No	2 (0.5%)

Table 3: Knowledge regarding post exposure prophylaxis:

Those receiving HIV post exposure prophylaxis must be followed up:	Number (%)
After 2 weeks	99 (25.8%)
After 3 weeks	87 (22.7%)
After 6 weeks	180 (46.9%)
After 12 weeks	62 (16.1%)
those vaccinated against hepatitis b must receive another dose following injury:	
Yes	275 (71.6%)
No	109 (28.4%)
Those with previous hepatitis b virus infection require prophylaxis:	
Yes	138 (35.9%)
No	246 (64.1%)
Hepatitis b immunoglobulin for non - vaccinated must be given:	
Within 48 hours	315 (82%)
Within a week	67 (17.4%)
Within 2 weeks	15 (3.9%)

4. Discussion

Safe medical practice is a rising issue in developing countries such as Sudan. Needle - stick injury is an important issue that needs to be addressed to protect health care workers from blood born diseases such as hepatitis B, C and HIV. The risk depends on the knowledge of health care workers with the precautions they need to take to prevent transmission of such diseases.

The study showed that 92.2% (n=354) believe that recapping the used needle is the cause of needle - stick injury, while 31.3% (n=120) believe it is due to failing to dispose the needles properly in the safety box. other causes of needle - stick injury included sudden patient movement during injection and transfer of body fluids between containers were 17.2% (n=66) and 16.9% (n=65), respectively.

Following a needle - stick injury the sit needs to be washed with soap and water and allowed to bleed and those who believe this were 63.3% (n=243) and 5.2% (n=20%). this reflects that most of these doctors know that they should wash the site with soap and water.

Those who believe that a post exposure prophylaxis must be given for those previously vaccinated were 71.6% (n=275) which reflect a good knowledge in this area. The results showed that 64.1% (n=246) think that those previously infected with hepatitis b must not receive the vaccine.82% (n=315) and 17.4% (n=67) believe that hepatitis b immunoglobulin must be given within 48 hours and 1 week, respectively. Those who believe that HIV post exposure prophylaxis must be followed after 6 weeks were 46.9% (n=180), while those who believe it should be after 12 weeks were 16.1% (n=62).

5. Conclusion

The study showed that the doctors of the emergency department have good knowledge about needle - stick injury, despite the fact that most of them did not receive any training courses in this area. In order to increase their knowledge about this subject and raise their awareness about the precautions they need training courses in this area.

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