

Sharp-Edged Accidents in Health Personnel

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Abstract:

Introduction: A biological accidents is an exposure of health personnel to potentially infectious fluids. When these accidents occur, they should always be considered a high priority for the protection of health personnel. The most affected population is the nursing staff, cleaning staff and doctors.

Objectives: Describe the frequency of accidents with sharp objects in health personnel, the percentage of reports to relevant authorities, assess the percentage of vaccination for Hepatitis B and participation in biosafety training.

Materials and methods: An observational, descriptive and cross-sectional study is carried out through an online survey by Google Forms™ to health professionals. Results: Were obtained 26 responses, which 92.3% belonged to medical personnel, 7.7% were graduates or nursing technicians. The 57.7% of the people were male. The 88.5% reported having immunization against Hepatitis B. 6 out of 10 accidents were reported.

Discussion: Most of the results equal the bibliography, like the number of accidents reported, percentage of vaccination against Hepatitis B, and the motives they weren't reported. **Conclusion:** Promoting biosafety training is the first step to guarantee the protection of health personnel, because by preventing these events, exposure and risk of disease transmission is reduced.

Keywords: health personnel; accidents with sharp objects; biosafety training

Introduction

The Center for Disease Control and Prevention defines biological accidents as an exposure of health personnel to potentially infectious fluids¹, like blood, tissues or body fluids (semen and vaginal secretions, cerebrospinal, synovial, pleural or peritoneal fluid) [2], have contact with a percutaneous lesion, puncture or cut, or by contact with mucous membranes or

non-intact skin¹. When these accidents occur, they should always be considered a high priority for the protection of health personnel².

The most common types of exposure are hollow-grooved needle injuries, splashes, and blunt needle injuries [2]. They typically occur during the recapping of needles using two hands and the unsafe collection and disposal of hazardous waste¹. The most affected population is the nursing staff, cleaning staff and doctors [2].

The paraguayan Ministry of Public Health and Social Welfare³ classifies accidents according to risk as:

- Slight risk: superficial accident, without visible blood on the instrument or with a solid (suture) needle.
- Serious risk: accident with a grooved needle, deep with evident blood or with a device that was placed in a blood vessel.

According to a report from the Center for Disease Control and Prevention, the most frequent causes of accidents are [4]:

- Lack of personal protective equipment, safety devices, and sharps disposal containers.
- Lack of procedures for reporting sharps injuries.
- Lack of awareness with occupational risks.
- Insufficiently trained staff.
- Restricted access to sharps disposal containers.
- Staff shortage.
- Recapping of needles after use.
- Passage of sharp instruments from hand to hand in the operating room.
- Not use sharps disposal containers immediately after use.
- Unforeseen medical incidents.
- Unexpected reactions from patients.

Objectives

Describe the frequency of accidents with sharp objects in health personnel, the percentage of reports to relevant authorities, assess the percentage of vaccination for Hepatitis B and participation in biosafety training.

Materials and methods

An observational, descriptive and cross-sectional study is carried out through an online survey by Google Forms™ to health professionals, where the following variables were determined: work area, age, sex, immunization against Hepatitis B, participation in training biosafety, knowledge of protocol in case of exposure, number of exposures, whether they were high risk or low risk (in the last year).

Results

Were obtained 26 responses, which 92.3% belonged to medical personnel, 7.7% were graduates or nursing technicians. The 57.7% of the people were male.

Questioned about vaccination against Hepatitis B, 88.5% reported having immunization. Most of the respondents (76.9%) did not participate in biosafety training in the last year. But 65.4% responded that they know the protocol to follow in the event of a sharp-edged accident.

In the last year, 57.7% (15 people) had some type of sharps accident, of which 62.5% was a superficial accident without visible blood on the instrument or with a solid needle and 37.5% was with a grooved needle with evident blood or with any device that was placed in a blood vessel.

Only 60% reported the accident to a superior/supervisor, some reasons why it was not reported were: considering the accident as a minimum, not knowing who to report to or if it warranted it.

The 52% reported that they received precise guidance on the protocol to follow, of which 37.5% (9 people) received post-exposure prophylaxis with antiretrovirals.

Discussion

When analyzing the distribution of the number of accidents per month, an important expansion was observed, with a range from 2.0 to 7.2 accidents/month⁵. However, the results of a study show that only one in ten accidents with sharp objects is reported, a number that coincides with that described in other developing countries⁶. However, according to the survey done 6 out of 10 accidents were reported.

The prevalence in Latin America of transmission by hepatitis B virus (HBV) is higher in health workers. The percentage of infections attributable to occupational causes is 52% for this virus, 65% for the hepatitis C virus (HCV) and 7% for the human immunodeficiency virus (HIV/AIDS) [7]. The risk of hepatitis B after a needlestick injury from a patient with HBs Ag positivity is much higher than the risk of HIV infection, between 6 and 30%¹.

In case of exposure to a large amount of blood or when the source of infection is a subject with a high concentration of HIV in the blood, the risk of infection can exceed 0.3%¹.

In addition to using measures to avoid sharp-edged accidents, another primary prevention measure is vaccination against hepatitis B, done in 88.5% of the surveyed population, coinciding with another study by Junco et al [8].

Post Exposure Prophylaxis with antiretrovirals (ARVs) as secondary prevention has been demonstrated, with an 80% risk reduction even with a single drug, zidovudine [2].

The ideal time to start ARV prophylaxis is in the first 2 hours and within 36 hours, and it can even be started up to 72 hours after the event occurred. Once Post Exposure Prophylaxis has been started and if it is confirmed that the source is HIV negative after 72 hours, it should be discontinued⁹. Of those who had a sharp injury in the survey, less than 40% received prophylactic medication.

Some reasons for the lack of notification expressed coincide with the bibliography [6, 8]: considering the exposure of low risk, or not important for notification.

Some effective measures to prevent infections due to occupational exposure to blood in health personnel include: immunization against Hepatitis B Virus, training of health personnel on the risks they are exposed to, correct disposal of hospital hazardous waste, avoid recapping needles and disposing of sharps in containers for disposal immediately after use [1].

Conclusion

Promoting biosafety training is the first step to guarantee the protection of health personnel, because by preventing these events, exposure and risk of disease transmission is reduced. It is important to inform all employees of an institution about the reporting protocol because the injury surveillance system is a vital component of the prevention program, which must take into account the injury reporting system and the procedure to follow for the prevention of communicable diseases, which includes the evaluation of the accident and its causes, prophylaxis, post-exposure and immunization of the injured [10].

Conflicts of interest

The author has no conflicts of interest.

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