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ORIGINAL ARTICLE

ACCIDENTS WITH EXPOSURE TO BIOLOGICAL MATERIAL TREATED AT A HOSPITAL

ACIDENTES COM EXPOSIÇÃO A MATERIAL BIOLÓGICO ATENDIDOS EM UM HOSPITAL

ACCIDENTES CON EXPOSICIÓN A MATERIAL BIOLÓGICO ATENDIDOS EN UN HOSPITAL

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ABSTRACT

Objective: to describe the occurrence and characteristics of accidents with biological material treated at the hospital of reference in Infectology for prophylactic treatment. Method: This is a quantitative, descriptive, retrospective study in the database of the hospital pharmacy. The completed notification forms were filled in appropriately. Results were presented in the form of tables and figures. Results: 529 cases of accidents involving exposure to biological material were reported; Of these, 496 (93.8%) required post-exposure prophylaxis and 43.3% had no information about the source person; As to gender identity, 351 (66.4%) claimed to be men, 173 (32.7%) claimed to be women and five (0.9%) claimed to be a transsexual man; were occupational accidents 397 (75%) occurrences, sexual exposure consented in 129 (24.4%) cases and victims sexual violence in three (0.6%). Conclusion: Any accident with exposure to biological material should be considered as a case of medical emergency, since, in order to be more effective, interventions for prophylaxis need to be initiated soon after the occurrence of the accident. Descriptors: Occupational Exposure; Biological Risks; Infectocontagious Disease; Work Accidents; Occupational Health; Infectology.

RESUMO

Objetivo*:** descrever a ocorrência e as características de acidentes com material biológico atendidos no hospital de referência em Infectologia para tratamento profilático. ***Método*:** trata-se de estudo quantitativo, descritivo, retrospectivo, no banco de dados da farmácia hospitalar. Elegeram-se as fichas de notificação preenchidas de forma adequada. Apresentaram-se os resultados em forma de tabelas e figuras. ***Resultados*:** notificaram-se, 529 casos de acidentes envolvendo exposição a material biológico; destes, 496 (93,8%) necessitaram de profilaxia pós-exposição e 43,3% não tinham nenhuma informação sobre a pessoa-fonte; quanto à identidade de gênero, 351 (66,4%) afirmavam ser homens, 173 (32,7%) afirmavam ser mulheres e cinco (0,9%) afirmavam ser homem transexual; foram acidentes ocupacionais 397 (75%) ocorrências, exposição sexual consentida em 129 (24,4%) casos e vítimas violência sexual em três (0,6%). ***Conclusão: deve-se considerar qualquer acidente com exposição a material biológico como caso de emergência médica, uma vez que, para se obter maior eficácia, as intervenções para profilaxia necessitam ser iniciadas logo após a ocorrência do acidente. ***Descritores*:** Exposição Ocupacional; Riscos Biológicos; Doença Infectocontagiosa; Acidentes de Trabalho; Saúde Ocupacional; Infectologia.

RESUMEN

Objetivo: describir la ocurrencia y las características de accidentes con material biológico atendidos en el hospital de referencia en Infectología para tratamiento profiláctico. Método: se trata de un estudio cuantitativo, descriptivo, retrospectivo, en el banco de datos de la farmacia hospitalaria. Se eligieron las fichas de notificación cumplimentadas adecuadamente. Se presentaron los resultados en forma de tablas y figuras. Resultados: se notificaron 529 casos de accidentes que involucra exposición a material biológico; de estos, 496 (93,8%) necesitaron de profilaxis post-exposición y el 43,3% no tenían ninguna información sobre la persona-fuente; en cuanto a la identidad de género, 351 (66,4%) afirmaban ser hombres, 173 (32,7%) afirmaban ser mujeres y cinco (0,9%) afirmaban ser hombre transexual; fueron accidentes ocupacionales 397 (75%) ocurrencias, exposición sexual consentida en 129 (24,4%) casos y víctimas de violencia sexual entres (0,6%). Conclusión: se debe considerar cualquier accidente con exposición a material biológico como caso de emergencia médica, ya que, para obtener mayor eficacia, las intervenciones para profilaxis necesitan ser iniciadas inmediatamente después de la ocurrencia del accidente. ***Descritores*:** Exposición Ocupacional; Contención de Riesgos Biológicos; Enfermedades Transmisibles; Accidentes de Trabajo; Salud Laboral; Infectología.

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INTRODUCTION

It is known that occupational accident is that arising from the exercise of work, and may cause bodily injury or permanent or temporary functional disturbance, loss or reduction of ability to work or even death.[1]

Post-exposure prophylaxis (PEP) has been available in UHS since 2000, and it is an already assimilated technology that is part of the set of combined prevention strategies. It is understood that its recommendations are for people who may have had contact with HIV in situations of sexual violence, unprotected sexual intercourse, potential risk of infection, or occupational accident (with sharp instruments or in direct contact with biological material).[3]

It is believed that health professionals are potentially exposed to various risks present in the work environment while carrying out their work activities, which can cause them to become ill and/or occupational accident.[4]

It is warned that occupational exposure to biological material in health institutions is still frequent and can cause damage to the physical, mental and social integrity of the victim, and this type of injury has been one of the most frequent among Nursing workers.[3,5]

Some factors are predisposing to these problems, such as the insufficient number of workers, work overload, fatiguing hours, continuity of shift attendance and night shifts, physical and emotional exhaustion, poor technical training, and lack of attention, excessive confidence, and use of inappropriate materials, stress and non-adoption of standard precautionary measures.[3]

There are worrying accidents involving biological materials such as blood and organic fluids, as these substances can transmit infectious diseases such as hepatitis B, hepatitis C and acquired immunodeficiency syndrome (AIDS), among other diseases. It is estimated that, according to estimates by the Centers for Disease Control and Prevention (CDC), the number of health-related injuries exceeds half a million every year.[6-8]

In order to reduce work-related accidents with exposure to biological material, safety and health education and adherence to safe working practices, as well as reducing the use of invasive procedures (as much as possible), a safe work and an adequate ratio of professionals in the health teams by the proportion of patients assisted.[9-10]

HIV / HCV coinfection has become a major public health problem because of the potential for these viruses to act synergistically, accelerating the progression of HCV-related liver disease. It is estimated that there are more than 170 million people infected with the hepatitis C virus worldwide, 40 million people with HIV and about ten million people coinfected, and the prevalence rates of HCV infection are higher in the HIV positive population, and about 10% of HIV-positive patients are also HCV positive. In Brazil, the prevalence of HCV in HIV-infected patients is varied according to the risk factors for HCV and HIV infection, reaching an average of 40%.[11-2]

It is reported that hepatitis B virus (HBV) infection is one of the most serious public health problems, due to the high number of people infected by this etiological agent. The World Health Organization (WHO) reports the existence of approximately 350 million people chronically infected with this virus in several regions of the world, of which approximately two million are concentrated in Brazil.[13]

Standard precautions are used as preventive measures mainly to protect the health professional in procedures that may present the potential risk to contact with the patient's bodily fluids infected with transmissible etiological agents, including HIV and HBV. These precautions are implemented in all patients regardless of their diagnosis, from admission to discharge.[13]

In addition to these prevention measures, these professionals can also be immunized in the public health network. The risk of occupational infection can be significantly reduced if standard precautions are appropriately adopted and there is awareness of the importance of this immunization.[13]

In order to prevent occupational accidents involving biological material, joint actions, established between workers and service management, should be included in order to improve working conditions, especially directed to the organization of work, the provision of materials with safety devices, to the establishment of educational programs, as well as to the sensitization with a view to the change of behavior between workers and managers, since isolated actions are considered ineffective to minimize these problems.[14]

Adherence to the follow-up, regarding the exposures to biological materials by sexual means, by consent or not, has been a concern of the technical staff of some services in order to guarantee the clinical follow-up of the cases, the correct use of medications and the effectiveness of prophylaxis. This aspect emerges as the great challenge for later studies, and the reception of this patient at the time of first attendance, allowing a good relationship with the team, increased focus of attention, greater flexibility in scheduling and agile programs for the calling of absentees can lower these rates.[15]

OBJECTIVE

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• To describe the occurrence and characteristics of accidents with biological material attended at the hospital of reference in Infectology for prophylactic treatment.

METHOD

This is a quantitative, descriptive, retrospective study where the variables used were obtained in the accident notification sheets by biological material and the registration of dispensing of prophylactics in the database of the hospital pharmacy, where the antiretrovirals are dispensed for the prophylaxis of these cases, for the months of January to July 2018. The adequately filled notification forms were chosen for accidents involving exposure to biological material.

The research was initiated after approval by the Research Ethics Committee with human beings of the Dr. Heitor Vieira Dourado-FMT / HVD Tropical Medicine Foundation, under perish number 048441/2013 and CAAE 19103913.6.0000.0005, according to resolution 466/12 of the National Health Council / CONEP.[5]

Dr. Heitor Vieira Dourado-FMT / HVD Tropical Medicine Foundation is chosen as the study site, which is a university hospital, tertiary, reference in infectious diseases and also in the attendance to accidents involving exposure to biological materials in the State of Amazonas.

RESULTS

During the six-month period, 529 cases of accidents involving exposure to biological material were attended, and 496 (93.8%) required post-exposure prophylaxis; As for gender identity, 351 (66.4%) declared themselves men, 173 (32.7%) declared themselves women and five (0.9%) declared themselves to be transsexual men.

Table 1. Profile of those who were exposed to biological material and who sought the referral hospital for care. Manaus (AM), Brazil, 2018.

Variables		N	%
Age group	<12 years	5	0.6
	12-20 years	74	14.0
	21 – 40 years	432	81.7
	41 – 59 years	16	3.0
	>60 years	2	0.4
Genital organ of birth	Penis	290	54.8
	Vagina	339	45.2
Sexual orientation	Bisexual	26	4.9
	Heterosexual	411	77.7
	Homosexual/gay/lesbians	92	17.4
Have you used alcohol or other drugs in the past three months		78	14,7
In the last six months, accepted money, valuables, drugs, housing for sex		23	4,3
Pregant women		16	3,0

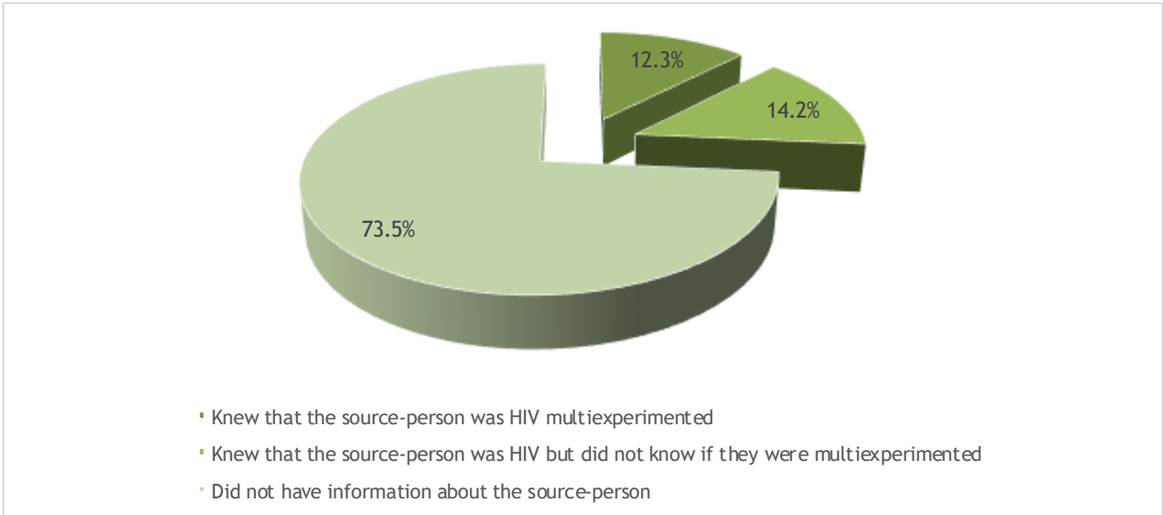

Figure 1. Knowledge about the source person. Manaus (AM), Brazil, 2018.

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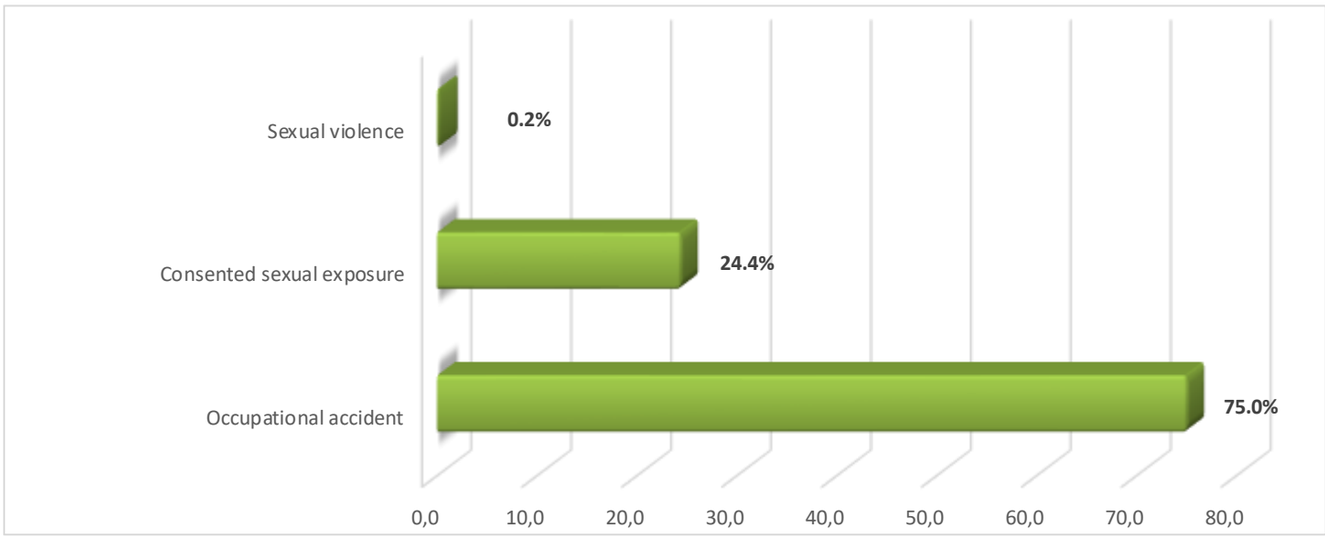

Figure 2. Description of the circumstance of exposure. Manaus (AM), Brazil, 2016. Source: Hospital pharmacy archives of the Dr. Heitor Viaira Dourado-FMT / HVD Tropical Medicine Foundation.

DISCUSSION

It is emphasized by the Ministry of Health that it is important to always emphasize that post-exposure prophylaxis is not totally effective; even so, prevention of exposure to blood or other biological materials is the primary and most effective measure to prevent transmission of HIV and hepatitis B and C viruses.[1]

The variables on the record sheet and request for prophylaxis, on the back, guidelines for the professional to have understanding and an adequate posture, at the moment of care, as to what to ask, being an example the question of the genre. In this case, the user should be asked what his genital organ was, especially for transsexuals and transvestites, and another question concerns sexual orientation. It is said in the instructions on the record sheet that one should ask why one is attracted affectively and sexually, and may be persons of the same gender (homosexual), of a different gender (heterosexual) or of both genders (bisexual) . The answer to this item should always be self-declared, even if the professional's opinion does not coincide with that stated by the user (Table 1).

The five children under 12 years of age were treated for prophylaxis, two (0.3%) were accidentally, by biological material of their parents, two (0.3%) were victims of sexual violence and one (0.2%) was exposed to blood from a family member who was known to be HIV positive.

A study was carried out [14] investigating the profile of those injured with biological material in notification sheets that occurred in the great Florianópolis that 73% of the occurrences were in females. It was also observed, in relation to the accident profile, by the same author that the predominance of the occurrence of the accidents was in individuals in the age group of 20 to 34 years (56%).

The findings are in accordance with the findings14, since the majority (81.7%) was between 20 and 40 years of age.

In another research, [15] investigated work accidents with exposure to biological material in health servers in Paraná, 56.9% of which were employees who worked in hospitals. It was also reported that[15], in relation to the agents causing work-related accidents with biological material, there was a predominance of needles with lumen in 701 (66.1%), lamina / lancet in 69 (6.5%), and other causative agents in 172 (16.2%).

It is clear from guidance in the notification form that the multi-experienced source person is one who is known to have HIV with multiple failures to adhere to antiretroviral treatment.

It was possible to show in this study that the majority of those who were exposed to biological material and who sought the referral hospital had no reliable information about the source person (Figure 1).

In a descriptive and retrospective study[15], it was reported that, in 75% of accidents, the injured person knew that the source person was HIV-positive and had a history of abandonment of treatment (multi-experienced). It is emphasized, for the same, that it is imperative to know the source person for decision-making for chemoprophylaxis.

Another serious problem is what was mentioned in another study that characterized the epidemiological profile of accidents with biological material (BM) occurred in a public dental teaching institution. The same one described that the majority of the accident victims did not notify the accidents, making the recommended conducts unviable and many banalized conduct considered fundamental, as the

interruption of the procedure and search of medical attention.[18]

The reduction of the risk of infection is also dependent on appropriate conduct after the occurrence of the accident, including the use of post-exposure prophylaxis (PEP) for the prevention of HIV contamination. It is estimated that PEP reduces seroconversion by 81.0%, hence the reason why the Ministry of Health emphasizes that post-exposure prophylaxis is necessary, but it is not 100% safe.[11,18]

It was added that, of all those exposed by sexual intercourse, one (0.2%) was due to sexual violence in less than 12 years, and, of those who had consensual intercourse, 65 (26.1%) were aware that the source person was multi-experienced HIV positive and, even then, they did not use a condom.

It is recommended by the Ministry of Health that post-exposure prophylaxis (PEP) at risk for HIV infection, viral hepatitis and other STIs consists of the use of drugs to reduce the risk of acquiring these infections and that there is a PEP to HIV, considering total prophylaxis dispensations. However, it is necessary to indicate beyond those situations in which PEP is classically recommended, such as sexual violence and occupational accidents, in order to extend the use of this intervention also to consensual sexual exposures that represent a risk of infection.[2]

CONCLUSION

It was observed that most of the accident victims were classified as severe exposure, where there was no information about the source patient, thus requiring post-exposure prophylaxis, a matter of concern, since individuals who suffered accidents may be treated unnecessarily.

It is inferred perhaps that the lack of information about the source patient is due to the fact that accidents where there is exposure to blood and other biological fluids are considered a medical emergency, therefore, it is necessary to prioritize care at the most short time possible, and this may be related to the lack of information about the source patient, where the injured person comes looking for help and ends up forgetting to bring this data with him.

In this study, it can be observed that accidents with biological material are of concern and are considered clinical emergencies; however, it is known that post-exposure prophylaxis to biological material is not totally effective, so measures aimed at prevention, such as educational actions and individual and collective protection measures are fundamental.

Observations of the Standard Precautions are measures recommended by the Centers for Disease Control and Prevention (CDC). They should be universally followed by all healthcare providers in order to reduce the risk of contamination by blood-borne biological agents, body fluids and secretions (other than sweat), and prevent health-care-related infections (HCRI).[20, 21]

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