Work accidents with biological material with health professionals in Brazilian hospitals

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Abstract

Introduction: The occupational accident (OA) can be characterized as an accident resulting from the exercise of work in the service of a public or private institution, which can cause permanent or temporary physical injury or permanent disability, with consequent loss or reduction of the capacity for work. Biological risk is the main form of exposure of the professional, and the main form of exposure of the health professional to biological risks occurs when there is direct or indirect manipulation of biological material (BM), which can contribute to the transmission of pathogens and, in this way, bring several problems to the contaminated individuals. Objective: This study aimed to characterize the national studies produced in the last 5 years that address accidents and exposure to biological material in a hospital environment. Methodology: A narrative literature review was carried out in a 5 years period, excluding articles that did not address the topic, articles written in a language other than Portuguese, studies conducted outside the Brazilian context, and any publication that was not peer-reviewed. Results and Discussion: The articles analyzed exposed the Brazilian reality, showing that the exposure to biological material is, in most cases, by contact with blood and biological accidents are related, in most cases, to the manipulation of puncturing materials. Re-encapsulation of needles was the main type of action that resulted in accidents. In relation to professionals, negligence, fatigue and distraction on the part of the professional, as well as the inappropriate use of personal protective equipment and work overload were the most cited points. Conclusion: The work environments involved in the studies were generally described as unfavorable to workers' health, mainly because they added innumerable intervening factors, such as the technological gap and the lack of maintenance of the instruments of work, precarious ways of organizing work, lack personal protective equipment in adequate quantity and quality. The training is, in general, performed, but it is important to develop the initial training program and continuing education institutions and taxation of companies that do not comply with regulatory mandates for the prevention of occupational accidents. Adequate working conditions, personal protective equipment in adequate quantity and quality are also important factors that must be demanded from health institutions.

Keywords: Occupational accident, Exposure to Biological Agents, Worker's health, Occupational Hazards.

INTRODUCTION

The occupational accident (OA) can be characterized as that arising from the exercise of the work in the service of an institution, which can cause in the worker a bodily injury or permanent or temporary functional disorder, with consequent loss or reduction of the capacity for work. The consequences of accidents and occupational injuries include physical, economic and psychological damages to workers and their dependents, and may even lead to death in certain cases (Mbarki et al, 2013). Hospitals are characterized as health institutions (HS) that provide services to human health, including counseling, clinical, surgical and/or psychiatric consultations and treatment services for the healthy, sick and injured (Akagbo et al., 2017). They are classified as high-risk workplace. They are characterized by a high level of exposure to hazardous agents, which significantly endangers the health and life of workers, patients and community members if they are not adequately treated (Araujo et al., 2018; Pruss et al., 2014). The inappropriate or even non-management of these dangerous agents has clear implications for human health and the environment. It is clearly identified the need for attention with these agents, translating into the reduction of potential risk (Patil et al, 2005; Sousa, 2016; Silva, 2017). The main emphasis is given to biological risks, since they are the main form of professional exposure when directly or indirectly manipulating biological material (BM), resulting from health care (Manetti, 2006; Balsamo, 2006). Exposure to BM, whether through contact with body fluids or injuries caused

by sharp instruments, can contribute to the transmission of pathogens and thus bring various problems to contaminated individuals (Marziale, 2004). Based on the information previously presented, with the frequent occurrence of work accidents with biological material and in order to contribute to the knowledge of this type of accident, this study aimed to characterize the national studies produced in the last 5 years that address accidents and exposure to biological material in a hospital environment.

METHODOLOGY

The method used to draw this research was a narrative literature review, covering the period between 2014 and 2018, of the scientific productions on accidents with exposure to biological material occurred in Brazil. The search was done in the databases LILACS and SciELO, using the descriptors (ok keywords) “Occupational accident, Exposure to Biological Agents, Worker's health and Occupational Hazards”. In order to obtain recent and exclusively Brazilian data, it was decided to establish as exclusion criteria: articles that did not address the topic, articles written in a language other than Brazilian Portuguese, articles outside the specified period, studies conducted outside the context and any publication that was not peer-reviewed.

RESULTS AND DISCUSSION

First, 47 articles were separated, which, after applying the exclusion criteria (period of time, original language, studies conducted outside the context and any publication that was not peer-reviewed), resulted in 09 items analyzed. Duarte Valim (2014) carried out an investigation with 121 nurses from four hospitals, one of great size and the other three of small size. The method used was a self-administered questionnaire, with socio-demographic issues and related to work accidents. Regarding work accidents with exposure to biological material, 53.8% (n = 65) were victims, of which 65, 96.9% (n = 63) were exposed to puncturing materials. According to the author, the hospitals analyzed to carry out continuous training with the employees, however, the numbers are very high. In the same period, Jefferson Martins (2014) carried out a survey of the prevalence of accidents in a city of São Paulo, with dentistry professionals. The data collection was performed through reports of work accidents involving biological material between 2007 and 2011. Of the total number of reports, the most reported exposure was percutaneous (95.2%) and blood was the biological material reported in most reports (88.6%). According to the author, the number of notifications was below the expected average, being able to characterize under notifications. Also in the same year, Martins Mendonça (2014) collected data through direct observation for 3 months, where there were eight exposures to biological material, 5 related to blood and 3 related to vomiting. However, there were no biological accidents in the period. The cases of exposure occurred due to the lack of use of the protective equipment, demonstrating an undervaluation of these barriers by the workers. The following year, Camilo (2015) carried out a cross-sectional study evaluating reports during the period from 2010 to 2013. Accidents were percutaneous in 30 (88.2%) cases and by mucosal contact in 4 (11.7%). Accidents with biological material were more frequent in auxiliary professionals/nursing technicians, during the surgical act and manipulation of the instruments after surgery. Also in the same period, Costa (2015) carried out a documentary analysis in the period from 2007 to 2011, in order to raise the number of accidents with the nursing team. Of the 27 accidents occurred in the period, 21 occurred with residents, demonstrating the need for greater care with less experienced workers. Alves (2016) carried out a cross-sectional study where he identified that of the 28 participants, 12 (42.8%) suffered at least one accident with biological material during the professional exercise. The majority of the exposures were

percutaneous (91.7%), the blood was the most frequently involved fluid (75%). Regarding the procedure, 75% of the individuals were administering medication at the time of the accident and 50% admitted that they were reattaching used needles. A descriptive study, analyzing 284,877 notifications of the National system of injuries for 5 years, conducted by Moura D'Almeida Miranda (2017), indicated that the highest incidence density occurred in female subjects with 0.8 cases per 1,000 workers / year (n = 222,042, 77.9%); in the age group of 20 to 24 years old, with 0.6 cases per 1,000 workers / year (n = 64,221, 23.3%); with incomplete high school and higher education, with 0.6 cases per 1,000 workers / year (n = 141,275, 49.6%). On the other hand, Soares (2018) aimed to determine the incidence of sharps injuries in health professionals in the city of Cacoal / RO, noting that the nursing team represented 75.97% of the cases. Regarding the time of the accident, it was verified that there was a higher incidence during the handling of the box with a sharps material (19.62%), the needle with lumen being the major causative agent (51.92%) and blood the material with a higher incidence (72.12%) of the samples. In the same period, Lima (2018) proposed to identify the occupational risks of nursing professionals in the Materials and Sterilization Centers, performing an exploratory, quantitative study carried out on 77 nursing professionals from the Materials and Sterilization Centers of two public hospitals where it was noticed that among biological risks, 67 (95%) were vulnerable to infections. The investigation of Duarte Valim (2014) and Jefferson Martins (2014) was carried out in the same year, but in different locations. However, the results are very close, reporting that most accidents with biological material recorded (96.9% and 95.2%, respectively) were by sharp instruments. The data suggest that the prevalence of this type of accident is evident. The authors suggest that the main causes of these accidents may be related to the lack of continuous training and also by the devaluation of safety standards by the workers. The results obtained by Martins Mendonça (2014) corroborate with the authors' evaluation. In 2016, Alves found somewhat lower values with sharp instruments (91.7%), but still very high values. It can not be said that the results are better than the reports of 2014, because the sample seems to be very small to be compared with the other studies. Unfortunately, the works of Moura D'Almeida Miranda (2017), Lima (2018) and Soares (2018) fail in some aspects, and the first and second study begins only evaluating the records of cases of injury by sharp materials, not comparing this data with work-accident data as a whole, thus creating an empty data gap. The same occurs with the third author, reporting all types of accidents to which the professional is exposed, but without indicating how many of these risks are related to accidents with sharp instruments. The authors Camilo (2015), Costa (2015) and Moura D'Almeida Miranda (2017) related a higher incidence of accidents with sharps materials to workers with less experience and less knowledge. Based on this information, indicate that more training is needed for these workers and more information so that they are more aware of the hazards of the work environment. But the overconfidence of more experienced workers has also been suggested as a source of accidents.

CONCLUSIONS

The number of scientific papers on the subject of accidents with biological materials is small in relation to the size of the analyzed territory. The few articles have cut data on the subject and not reproduce the risks as a whole. A complete picture of the risks could focus where the factors that trigger the risk, to seek solutions in an effective way. Thus the institutions could assertively promote all the support and information necessary for the correct performance at work. At the same time, they could allocate investments directed towards programs of occupational health

responsibilities, contributing to the mitigation of the risks of accidents and accidents in this sector, fostering a sense of responsibility regarding their safety and health.

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