HEALTHCARE WORKERS’ OCCUPATIONAL EXPOSURE TO BLOODBORNE PATHOGENS: A 5-YEAR OBSERVATION IN SELECTED HOSPITALS OF THE MAŁOPOLSKA PROVINCE

ANNA RÓŻAŃSKA1, ANNA SZCZYPTA2, MAGDA BARAN3, EDYTA SYNOWIEC3, MAŁGORZATA BULANDA1, and MARTA WAŁASZEK4

1 Jagiellonian University Medical College, Kraków, Poland
Chair of Microbiology
2 Andrzej Frycz Modrzewski Krakow University, Kraków, Poland
Faculty of Health and Medical Sciences
3 John Paul II Hospital, Kraków, Poland
Infection Control Team
4 St. Lukas Hospital, Tarnów, Poland
Infection Control Team

Abstract
Objectives: The study presents data concerning occupational exposures among the staff of 5 hospitals in the Małopolska province in 2008–2012, taking into account the frequency and circumstances of exposure formation, occupational groups of hospital workers, as well as diversification of the reported rates in subsequent years between the hospitals and in each of them. An additional objective of the analysis was to assess the practical usefulness of the reported data for planning and evaluation of the effectiveness of procedures serving to minimize the risk of healthcare workers’ exposure to pathogens transmitted through blood. Material and Methods: Data were derived from occupational exposure registries kept by 5 hospitals of varying sizes and operational profiles from the Małopolska province from the years 2008–2012. Results: Seven hundred and seventy-five cases of exposure were found in a group of 3165 potentially exposed workers in the analyzed period. Most cases were observed in nurses (68%) and these were mainly various types of needlestick injuries (78%). Exposure rates with respect to all workers ranged from 2.6% to 8.3% in individual hospitals, but the differences in their values registered in the hospitals in subsequent years did not bear any statistical significance, in a way similar to the rates calculated separately for each occupational group. Conclusions: There was no upward or downward trend in the number of reported cases of exposure to bloodborne pathogens in the studied period in any of the hospitals. Statistically significant differences in the percentages of exposures were reported between individual hospitals in some years of the analyzed period, which confirms the need for registries in individual units in order to plan and evaluate the effectiveness of preventative measures.

Key words:
Health care workers, Occupational exposure, Bloodborne pathogens

Received: March 5, 2014. Accepted: May 16, 2014.
Corresponding author: A. Różańska, Jagiellonian University Medical College, Chair of Microbiology, Czysta 18, 31-121 Kraków, Poland (e-mail: rozanska@ifb.pl).
INTRODUCTION

Working in healthcare involves exposure to a number of adverse factors, be they biological, physicochemical, psychological or other, that may lead to transient or permanent health disorders, including occupational diseases. Three viruses, namely hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV), cause most cases of infections resulting from occupational exposure of healthcare workers, which is a consequence of the prevalence of these viruses in the population, and the ensuing diseases are recognized as being serious and very serious [1]. As part of a review of the available literature, however, Tarantola et al. have found instances of healthcare workers infections caused by 60 different pathogens, including 26 viruses, 18 bacteria, 13 parasites, and 3 fungi [2].

The issue of occupational exposure of healthcare workers, in particular to bloodborne viruses, is topical and significant in all countries.

It is estimated that annually there are 66 000 cases of HBV infection, 16 000 HCV infections and 1000 HIV infections worldwide among healthcare workers, which result from injuries and contact with blood and other infectious bodily fluids [3].

The Central Register of Occupational Diseases in Poland is kept at the Nofer Institute of Occupational Medicine in Łódź. In 2012, the most frequently recorded group of occupational diseases was constituted by infectious and parasitic diseases or their aftereffects (29.4% of all occupational diseases). Among 705 cases representing this group, 134 were reported by healthcare workers (HCWs), among which 70 concerned hepatitis B or C (59 and 11, respectively) and 64 concerned tuberculosis of occupational origin. The majority of cases in this category (75.5%) were Lyme disease ones reported by foresters [4].

The negative effects of HCWs’ occupational exposure to hazardous biological agents, which is predominantly caused by sharps injuries, are so significant in terms of health, sociology, economy and law that the European Union has introduced legal regulations designed to protect the exposed workers. In 2010, Council Directive 2010/32/EU was passed concerning the implementation of the Framework Agreement on prevention from sharps injuries in the hospital and healthcare sector concluded between HOSPE (European Hospital and Healthcare Employers’ Association, a sectoral organization representing employers) and EPSU (European Federation of Public Sector Unions) [5].

Fulfillment of recommendations resulting from the Directive in the Polish legal system is realized by the Regulation of the Minister of Health of 6 June 2013 on occupational health and safety when performing work involving exposure to injuries from sharp instruments used in providing health-related services [6].

The provisions of the Regulation require employers to use all available means of eliminating or limiting the degree of exposure to sharps injuries. This regulation applies to all people working under the direction or supervision of employers in the healthcare sector. Its provisions also indicate which data on cases of sharps injuries should be collected in healthcare units in order to assess the risk of such adverse events and the development of optimum preventative procedures, especially in the framework of participation in voluntary systems of epidemiological surveillance of occupational exposures carried out at different levels, in particular by research institutes, medical universities or EU agencies [6]. To date, data on occupational exposure gathered in individual units have not been widely used or published, especially from a multicenter perspective.

The objective of this study is to present and analyze data concerning occupational exposures to bloodborne pathogens among the staff of 5 hospitals in the Małopolska province in 2008–2012, taking into account the frequency and circumstances of exposure formation, occupational groups of hospital workers, as well as diversification of the reported rates in subsequent years between the hospitals and in each of them. An additional objective of the analysis is