

DEMOGRAPHIC AND LEGAL MEDICAL ASPECTS OF DEATH BY WORK ACCIDENT IN CURITIBA AND METROPOLITAN REGION IN THE YEAR 2019

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Abstract: Introduction: Deaths caused by work accidents are a serious public health problem. It is known that statistics referring to general and specific indicators related to work allow raising causal hypotheses of association with existing risk conditions and their occurrence serves to evaluate the measures adopted. **Objectives:** To analyze fatalities due to accidents at work in Curitiba and in the metropolitan region of 2019, in order to correlate demographic and medico-legal aspects. **Materials and methods:** An observational and cross-sectional study was carried out to analyze the profile of deaths from work accidents (typical or commuting) in Curitiba/PR and Metropolitan Region in 2019. Data were obtained from autopsy reports, in which the characterization of deaths was based on information from medical records of the hospital of origin or records of professionals from the Legal Medical Institute (IML) who were at the scene of the event to collect the body, as well as toxicological tests carried out by the IML of Curitiba/PR. **Results and discussion:** There were 15 deaths from work accidents. 86.7% were male and 13.3% were female, aged between 13 and 59 years. 73.3% were single, 20% were married and 6.66% were divorced. As for the profession, bricklayers were 26.6%, 13.3% and self-employed, waiter, elderly caregiver and security, 6.66% each. 42% of the sample had no profession data available in the report. All deaths were due to an occupational accident, with 66.6% of the cases through blunt action, 13.3% through blunt action, 13.3% through electrical energy and 6.66% through biochemical means. The most prevalent medical cause of death was traumatic brain injury, accounting for 46.6% of the total, followed by electropletion, with 13.3%, and septicemia, acute myocardial infarction, acute hemorrhage, neck injury, chest injuries and multiple trauma, with

6.66% each. Toxicological tests showed the alcohol dosage, in which 53.3% were negative, 20% had no data and 26.6% were detected in the following dosages: 7.1; 10.6; 14.2; 23.4 dg/L. In only 1 patient, 6.66%, dipyrone was detected. **Conclusion:** This analysis had as most of the deaths due to accidents at work, young men, single and with occupations in civil construction, similar to what was found in the literature. Regarding the cause of death, almost half, 46.6%, of the total were due to traumatic brain injury. Regarding toxicology, 53.3% of the individuals had a negative test and 26.6% worked even after ingesting ethyl alcohol. Despite regulatory standards, Brazil still has records of fatal accidents at work. In this context, it is necessary to expand inspection and education in health and accident prevention, in order to stop unfavorable outcomes that have consequences that affect not only the employee and employer, but also society.

Keywords: Work Accident; Necropsy, Legal Medical Institute of Curitiba/PR; causes of death.

INTRODUCTION

Fatal accidents at work constitute an important part of the number of deaths from external causes in Brazil and, as they are preventable, they require great attention from public health, aiming at their prevention (1).

Workplace accidents have a major impact on the health and economy of all countries. According to the International Labor Organization (IOT), the number of people injured in this type of accident exceeds 317 million per year worldwide. Brazil was the fourth country in the number of deaths from work accidents in 2010, with more than 2,500 deaths reported (2)(3). In 2019, 3,487 deaths from work accidents were recorded throughout the national territory, of which 15

occurred in the city of Curitiba, corresponding to 0.43% of all deaths from work accidents in the country (4).

In addition to issuing the Death Certificate (DO), these cases must be immediately notified to the Notifiable Diseases Information System (SINAN), but it is known that there is an important underreporting of work accidents (1). The Legal Medical Institute (IML) is responsible for filling in the death certificate and information on the likely circumstances that occurred, which are of epidemiological interest and which must be filled in for non-natural deaths, which are those that occur in deaths from work accidents. (6). With these data, a profile of workers who died due to occupational accidents can be drawn, making it possible to identify groups that are exposed to greater risks at work.

The objective of the present study was to analyze fatalities due to accidents at work in Curitiba and in the metropolitan region of 2019, correlating demographic and legal medical aspects.

MATERIALS AND METHODS

An observational and cross-sectional study was conducted at the facilities of the Scientific Police - Instituto Médico Legal do Paraná, in the city of Curitiba, Paraná, Brazil, between May and December 2020. The study was approved by the Research Ethics Committee of the Complexo Hospital de Clinics of the Federal University of Paraná.

Data were obtained from the review of autopsy reports and the results of toxicological examinations from the autopsy of victims of deaths from work accidents that occurred between January 1 and December 31, 2019 in the city of Curitiba and its Metropolitan Region. The information analyzed consisted of the date of occurrence, sex, age, nationality, marital status, profession and race. Regarding

the medical-legal aspects, the legal and medical causes of death were explored, as well as the etiologies. In the toxicological study, the dosages of ethyl alcohol, cocaine and other drugs.

All fatal occurrences of typical work and commuting accidents, involving individuals over 18 years of age, were included, and this characterization was based on information from the medical records of the hospital of origin or records of professionals from the IML who were at the scene. of what happened to collect the body.

All information was organized in a *Microsoft Excel® spreadsheet* and analyzed using the computer program *Stata /SE v.14.1. StataCorpLP, USA* for expert reports from the Scientific Police of the State of Paraná.

RESULTS

There were a total of 15 deaths from work accidents. The deaths occurred in January ($n=4$), March ($n=2$), April ($n=2$), June ($n=2$), July ($n=1$), September ($n=1$), October ($n=2$) and December ($n=1$). The days of the week in which the deaths occurred were Sunday ($n=3$), Monday ($n=1$), Tuesday ($n=1$), Wednesday ($n=4$), Thursday ($n=2$), Friday ($n=2$) and Saturday ($n=2$). 86.7% were male and 13.3% were female, aged between 13 and 59 years, so that the median age was 32 years and the mean was 35.13 years. The entire sample was of Brazilian nationality. Regarding marital status, 73.3% were single, 20% were married and 6.66% were divorced. As for the profession, 26.6% were bricklayers, 13.3% were students, 6.66% were self-employed, waiters, elderly caregivers and security guards each, and 3.33% had no data described in the identification of the autopsy reports. Except for 1, who was brown, all were white.

All deaths were due to a legal cause of work accident, with 66.6% having blunt

action as an instrument or means of death, 13.3% cutting-blunt, 13.3% electrical and 6.66% biochemical. The most prevalent medical cause of death was Traumatic Brain Injury, accounting for 46.6% of the total, followed by electropletion, with 13.3%, and septicemia, acute myocardial infarction, acute hemorrhage, neck injury, chest injuries and multiple trauma., with 6.66% each. The etiologies were falls, accidents at work, with tractors, traffic accidents and electric shocks.

In the toxicological analysis of the victims, regarding the alcoholic dosage, 53.3% was not detected, 26.6% was detected in the following dosages: 7.1; 10.6; 14.2; 23.4 dg/L and 20% had no described data. In relation to cocaine or crack, all were not detected, except 3 that had no described data. In the case of other drugs, 6.66% were detected dipyrone, in the other cases, it was not detected in 20% and there were no data described for the remaining 73.3%.

DISCUSSION

The International Labor Organization defines an accident at work as any unforeseen and unexpected event related to work activities, which results in bodily injury, illness or death of workers (7). Annually, approximately 270 million of these accidents occur in the world, of which approximately 6,000 are fatal (8). In Brazil, every two hours there are three deaths related to work accidents (8).

Between 1997 and 1999, a study carried out in São Paulo showed that most victims of fatal accidents at work in Brazil were men, adults and aged between 20 and 39 years old, with more than 50% of deaths occurred in married individuals (8.9). These data are in agreement with the present study, except for the percentage of married individuals, which make up 20% of the sample against 73.3% of single individuals. This may indicate that the profile of individuals has remained relatively

stable over time, but with a tendency to affect more single individuals than married individuals.

In addition, the segment of workers most affected in the city of Curitiba and its metropolitan region was civil construction (26.6%), which is also in line with the profile of employees most affected by work accidents in Brazil (10, 11). This fact can be explained by the negligence in relation to health and safety at work (10), as well as justifies the main ways in which these accidents occur (blunt action) and the most prevalent medical cause of death (traumatic brain injury), both related to the work environment and lack of prevention (10)

Finally, the consumption of alcohol in the work environment makes the employee more likely to perform unsafe acts, predisposing the occurrence of accidents due to loss of attention and decreased reflexes (12). The finding of alcoholic dosages in 26.6% of the individuals who underwent the toxicological examination shows a possible factor that can be prevented to corroborate the decrease in the number of fatalities related to alcohol consumption, since the use of this substance can increase about 4.26 times the risk of suffering a work accident (12).

The main limitations that this work presents refer, above all, to the small sample value, given that data collection took place only in 2019, and it is not possible to compare it to deaths from work accidents that occurred in previous years or later. In addition, the information obtained was taken from the medical records of the hospital where the death originated or from the records of professionals from the IML who were at the scene of the event to collect the body, which makes it difficult to technically standardize the types of instrument or means of death. In this context, further studies are needed to monitor the epidemiological characteristics

of deaths from work accidents, not only in Curitiba and the Metropolitan Region, but also in the entire state of Paraná.

CONCLUSION

This analysis had as most of the deaths due to accidents at work young men and those with occupations in civil construction, similar to what was found in the literature. Regarding the cause of death, almost half, 46.6%, of the total were due to traumatic brain injury. Regarding toxicology, 53.3% of the individuals had a negative test and 26.6% worked even after ingesting ethyl alcohol. Despite regulatory standards, Brazil still has records of fatal accidents at work. In this context, it is necessary to expand inspection and education in health and accident prevention, in order to stop unfavorable outcomes that have consequences that affect not only the employee and employer, but also society.

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