

FORENSIC ANALYSIS OF THE CASES OF VIOLENT DEATH IN CHILDHOOD
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ABSTRACT:

Mortality is an important demographic indicators that affects the number and structure of the population. A serious problem not only in Bulgaria but also worldwide, is death in childhood. It is divided into two groups - non-violent (due to illness) and violent (homicides, suicides and accidents). Materials and Methods: forensic autopsy, death reports, chemical analysis of samples of blood, urine and internal organ parts with subsequent full forensic analysis of all collected information. Results: During the study we performed forensic autopsies of deceased in the department of Forensic Medicine and deontology – Medical faculty, Medical University-Sofia for the period 2006-2015. Were performed 10,443 autopsies and 293 of them were cases of deceased children. The most common violent cause of death in children under one year of age was mechanical asphyxia from aspiration of gastric contents by accident after feeding the child. It is followed by cases of homicide with blunt and sharp objects. In older children we observed frequent cases of mechanical asphyxia due to drowning, carbon monoxide poisoning and road accidents, the latter being the leading cause of death in children pedestrians or passengers in cars in the age group 15-18 years. Conclusions: The death of a child is a loss for society and a great tragedy for the family and relatives. Different age groups have different characteristic cause of death. The main goal of any society is understanding why children are dying, and taking action to prevent their death.

Key words: *Violent death, children, forensic analysis*

INTRODUCTION

Death is the inevitable natural end of every living organism [1], a complete and irreversible cessation of all vital processes. Mortality is an important demographic indicators that affects the number and structure of the population. A serious problem not only in Bulgaria but also worldwide, is death in childhood. From a social and legal point of view, death can be divided into two categories [1, 2]: nonviolent - early (due to illness) or physiological (prematurity, severe fetal malformations), and violent as a result of the effect of different external factors (mechanical, thermal, chemical, etc.). The latter is divided into three groups - homicide (illegal deprivation of human life, intentionally or negligently), suicide (intentional depriving yourself of life) and an accident (death that occurred accidentally because of bad circumstances which means that there is no intentional or careless fault [1, 3, 4, 5]). The causes of death are related to various diseases and traumatic injuries that occur intentionally or negligently [3, 6]. International and our studies show that among different age groups there are different leading causes of death [3, 4, 7, 8].

This study aims to make a full forensic analysis of the cases of violent death in different

age groups in childhood from the child's birth to adulthood for the period 2006-2015.

MATERIALS AND METHODS

We performed a comprehensive forensic analysis of the cases of deceased between the ages of 0-18, subject of examination in the Department of Forensic Medicine and deontology, Medical faculty, Medical University-Sofia - forensic autopsies, analysis of death reports, chemical analysis of blood, urine and internal organ parts. In the study, the cases of deceased children were divided into five age groups to obtain more accurate information on the leading causes of death in each of them: the first period - from birth to the end of the 12th month, the second period - 1 to 4 years old, the third period - from 5 to 9 years old, the fourth period - from 10 to 14 years old, and the fifth period - from 15 to 18 years old.

RESULTS

Between 2006 and 2015, in the Department of Forensic Medicine and Deontology, Medical faculty, Medical University - Sofia, were made 10,443 autopsies and 293 of them were cases of deceased children. In more than half of the cases the death was violent (homicide, suicide, accidents) and nearly a third - a result of a disease (congenital or acquired). We've seen a small percentage of stillborn children subject to forensic examination (Figure 1).

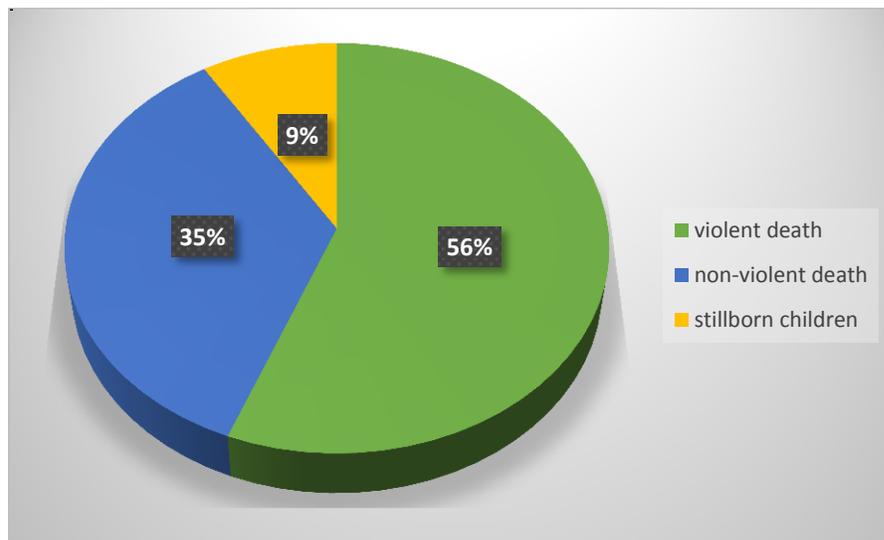


Figure 1. Death in childhood

Of all of the cases of children, subject of examination in the Department of Forensic Medicine and deontology - Sofia, 65% were males and 35% - female.

From the violent causes of death we have seen cases of murders, suicides and accidents (figure 2). For children up to one year there is almost equal distribution of the cases involving murders and accidents - 47.6% are accidents and 52.4% - homicide. In the other age groups accidents significantly prevail. Intentional suicides were not observed in the first three age period, which could be explained by the psychological state of children in these periods and greater monitoring by parents, relatives and carriers. In the next two periods suicides are a result of

problems in school, family or unrequited love.

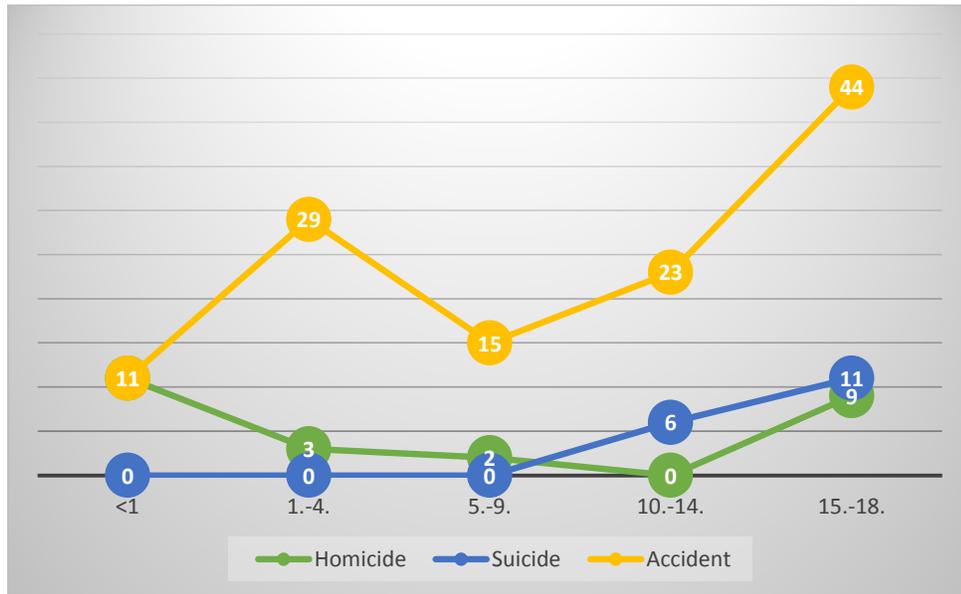


Figure 2. Violent causes of death

The leading violent cause of death in infants, under 1 year, is aspiration of gastric contents that occurs after feeding the child and then putting it in a supine position in which it regurgitates or vomits, followed by inhalation of the vomit. It was observed in 38.1% of the studied cases. The second most common cause of death are homicides with blunt objects that lead to the development of cranial, thoracic and abdominal trauma in 33.3% of the cases, followed by cases of mechanical asphyxia immediately after birth (i.e. Infanticide) in 14.3% and carbon monoxide poisoning - 9.5% of the examined children. In only 4.8% the cause the death was associated with homicide by sharp objects (figures 3 and 5).



Figures 3, 4 and 5: 3- Lungs filled with air; 4 – subdural hemorrhage in a case of a “Shaken baby” syndrome; 5- airways filled with sooth

In the age group between 1-4 years the leading cause of death is carbon monoxide intoxication in 24.2% of the cases that occurred in the conditions of fires (figure 5), mainly in winter period, followed by incidents of falling from high places (15.2%) of children left

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unattended, traffic accidents (15.2%) as passengers in cars, drowning (12.1%) and mechanical asphyxia from aspiration of gastric contents (12.1%). In 9.1% of the studied cases we observed homicides with blunt objects and 3% - with sharp object, committed by parents or the person taking care of the child. We also observed accidents where death is a result of a gunshot injuries (3%) or intoxication with drugs (3%).

In the next age period (5-9 years) with increasing the age and independency of the child, especially during the summer period we have observed an increased amount of deaths due to drowning while swimming in unsafe waters sources - in 35.3% of the cases. Again we examined cases of poisoning with carbon monoxide - 23.5%, and deaths in road traffic accidents as passengers in cars at 17.6%. We had isolated cases of falls from height and accidents with blunt objects that led to severe cranial, thoracic and abdominal traumas. The homicides in this age period were 11.8% as a result of head injuries caused by blunt objects.

In the group of children between 10-14 years are observed 34.5% of deaths from mechanical asphyxia due to drowning, 10.3% as a result of hanging, 24.1% - of victims of traffic accidents as passengers in cars or as pedestrians, 6.9% - falling from a high 6.9% - deaths by electric current, 6.9% - by carbon monoxide poisoning in fires, 3.4% - intoxication with ethyl alcohol, 3.4% - gunshot injuries and 3.4% - head trauma caused by blunt objects. We observed as well cases of suicide in 20.7%, and in the remaining cases the cause of death was an accident (fig.6-8).



Figures 6,7 and 8: 6- Contusion of the lungs and sub pleural emphysema; 7 – Homicide with a rifle; 8 – Injuries to the lungs cause by pellets

In the age period between 15-18years the leading cause of violent death were road traffic accidents in 48.4%. In 14.1% death was a resulted homicide due to injuries with hard blunt, sharp objects or firearms. Suicides are 6.3% of the studied cases due to hanging. At 4.7% death occurred after taking drugs. The detailed distribution of violent causes of death is presented in Figure 9.

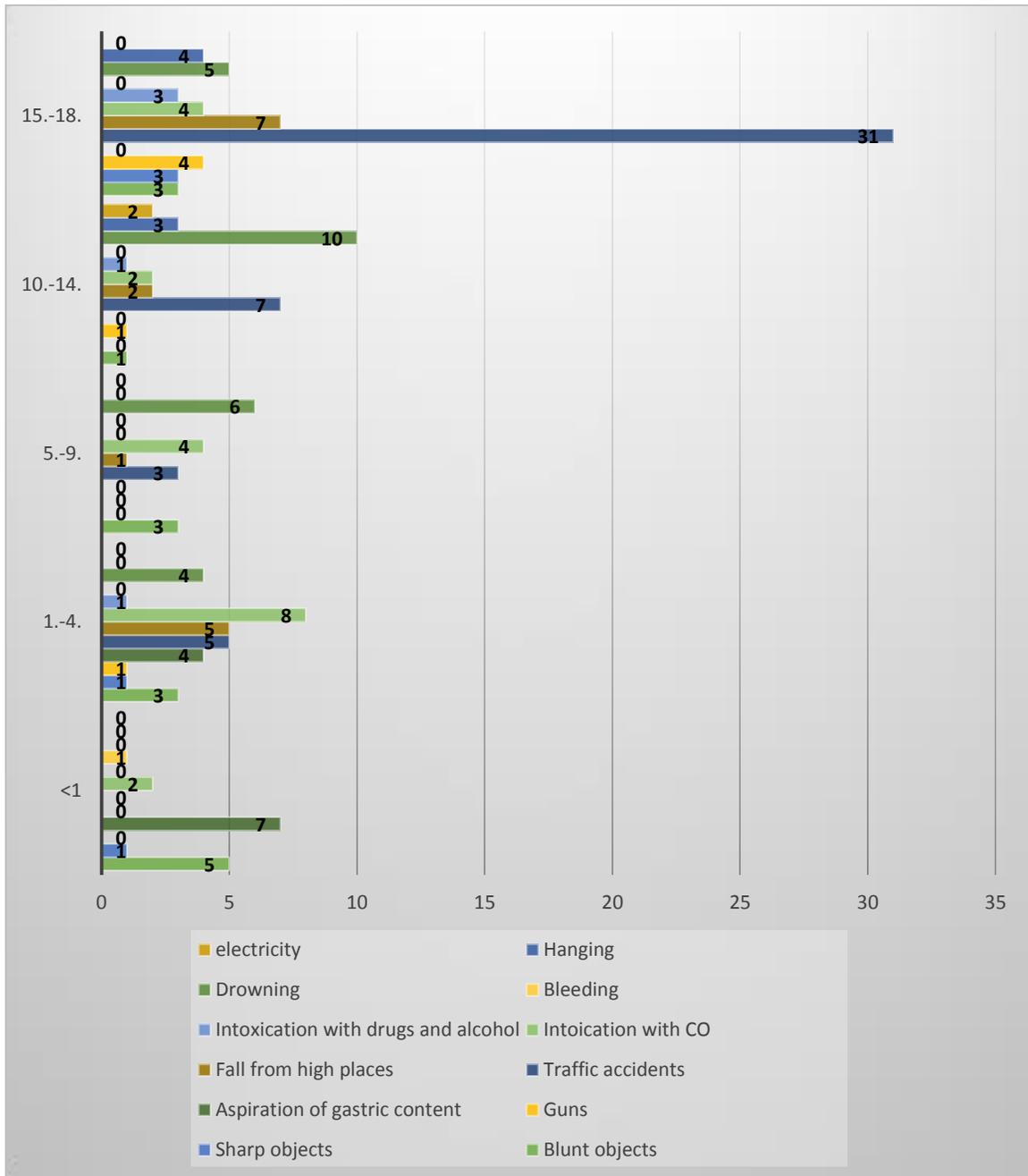


Figure 9. Distribution of the causes of violent death in childhood by age periods.

CONCLUSION

In early childhood the most common cause of death is mechanical asphyxia due to aspiration of gastric content. When the age increases, the number of violent causes of death also increases, primarily as a result of road traffic accidents as passengers in cars or pedestrians, as well as due to drowning in unregulated swimming areas, falls from high places or intoxications with different drugs and substances. The number of homicides and suicides in childhood is big as

well. The main goal of any society is understanding why children are dying, and taking action to prevent their death.

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