



ALCOHOL CONSUMPTION AND THE VIOLENT DEATH AMONG CHILDREN FROM IAȘI COUNTY

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Abstract. This paper represents an analysis of the main features of the alcohol consumption identified in violent deaths among children aged 0-18 years, registered in Iași county, between 2004-2008. The data source was gathered from the medico-legal files of the corpses, recorded at the Iași Medico-Legal Institute. The study has a descriptive character and aims to identify the following characteristics in connection with the consumption of alcohol: personal, temporal, spatial and death mechanism. From a total number of 274 violent deaths of children under 18 years, 126 children were suspected of alcohol drinking and tested, and 30 cases were found positive. A significant increase of alcohol consumption has been recorded during the summer, especially in July (p-value=0.01). The teenager alcohol consumer's profile was: 14-15 year-old child, male, rural area, who suffered a violent trauma at the end of the week, during summer, by drowning, place of death represented by running rivers. The study can be considered as a foundation for elaborating preventive strategies.

Keywords: violent death, alcohol testing, alcohol consumption, children, drowning

Introduction

Violent death among children represents a medico-legal form of death, and in the same time, an important issue of public health, with multiple social and medical implications [1,2]. According to the national statistics, in recent years there has been an obvious dramatic increase of the violent deaths (more than 60% of expertised corpses) [3].

Establishing of the etiology of violent death in childhood shows difficulties in separating intentional, suicidal injuries from the accidental ones. Emotional, relational problems, school difficulties,

lack of supervision by the family, but also consumption of toxics, may cause an aggressive behavior and violence [4,5].

Toxicological tests are recommended when a toxic action on the body is suspected, in order to exclude tanatogenesis, and they are mandatory for confirmation of the presence in the body of substances already known, such as the alcohol [6]. Researches showed that children who had consumed alcohol had a higher risk of involvement in road crashes, of drowning and even of suicide [7,8].

Material and method

The scope of this research is to establish the main features of alcohol consumption identified in violent deaths among children aged 0-18 years, registered in Iași county, within an interval of five years (2004-2008).

Based on the Medico-Legal Institute's reports,

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between 2004 and 2008, the violent deaths among children accounted a total number of 274 violent deaths. The cases arrived both from Iași county (68.62 %) and from other counties of Moldova region (31.38%), in the first stage the transfer to a special clinic depending on the seriousness of injury. In almost half of the cases (46%), the alcohol consumption has been suspected. These cases represented the studied sample (n=126 subjects), to whom alcohol tests have been performed. Out of these, 30 cases were found positive.

The study has a descriptive character and aims to identify the following characteristics in connection with the consumption of alcohol:

- personal (age, gender, residence area);
- temporal (variations in the number of deaths during the months of the year, the four seasons and the days of the week);
- spatial (the place where the trauma occurred);
- death mechanism.

Results

1. Personal characteristics. The age of the children suspected of alcohol ingestion ranged from 0 to 18 years, whereas positive tests have been found in 11-18 years age group (average 14.5 years, median 15 years).

The distribution by gender and residence area is described in table I. Significant differences between male and female deaths have been found among alcohol consumers (p-value = 0.012). So, the male/female calculated ratio was:

- 1.5/1 among all violent deaths;
- 2.6/1 in suspected tested children;
- 9/1 in alcohol positive confirmed cases.

The analysis of the residence area for alcohol consumption shows that three quarters (76.7%) of deaths occurred in rural areas, the urban/rural ratio being 1/3.3.

2. Temporal characteristics. The distribution by months of the 126 lethal injuries that have been

Variable		Alcohol testing			
		Suspected cases		Confirmed	
		No.	% of total cases	No.	% of tested cases
Gender	Male	91	55.5	27	29.7
	Female	35	31.8	3	8.6
Residence area	Urban	29	36.6	7	24.1
	Rural	97	50.0	23	23.7

Table I. Distribution by gender and residence area among alcohol tested subjects

The analysis of these data allows the elaboration of a profile of alcohol consumption in the child deceased through violence, on which foundation protective measures regarding accidents and traumas could be developed, in order to reduce complications, but mainly in order to prevent other deaths.

The data source was gathered from the medico-legal files of the corpses, files belonging to the Iași Medico-Legal Institute. The database was developed in the EXCEL program, part of Microsoft Office 2007 and the statistical analysis was done in EPI-INFO 2004. The chi square test was used to compare results. The value of p reflecting the probability that the difference between analyzed variables was random was considered higher than 0.05.

tested for alcohol consumption was unequal, with a higher number of cases from May to September. Out of these, in the same time interval we have detected the most confirmed cases (table II). When comparing the observed distribution by months with an expected equal distribution across the year, significant differences have been found (chi square=23.62; degrees of freedom=11; p-value=0.01).

Analysis by season of casualties suspected of alcohol consumption pointed out the highest value during summer, as depicted in figure 1.

When comparing the observed alcohol tested injuries sustained by the 126 children during the four seasons with an expected equal distribution, significant differences have been also found (chi square=17.23; degrees of freedom=3; p-value=0.006).

Evaluation of trauma by weekday pointed out

Month	Alcohol testing		
	Suspected cases	Confirmed No.	% of tested
January	9	-	-
February	5	2	40
March	9	-	-
April	5	-	-
May	10	5	50
June	19	3	15.8
July	30	12	40
August	14	5	35.7
September	12	3	25
October	7	-	-
November	4	-	-
December	2	-	-
Total	126	30	23.8

Table II. Distribution by month of alcohol tested violent deaths among children

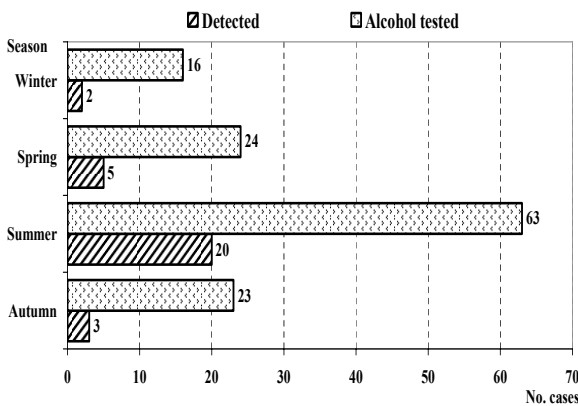


Figure 1. Distribution by season of alcohol tested and detected cases

relatively low variations. The number of suspected cases ranged from 12 on Wednesday, in the middle of the week, to 23 on Friday, in early weekend (figure 2).

In this case, the differences among the observed values by comparison to the equal repartition across a week were not significant ($p > 0.05$).

3. Spatial characteristics. The most important

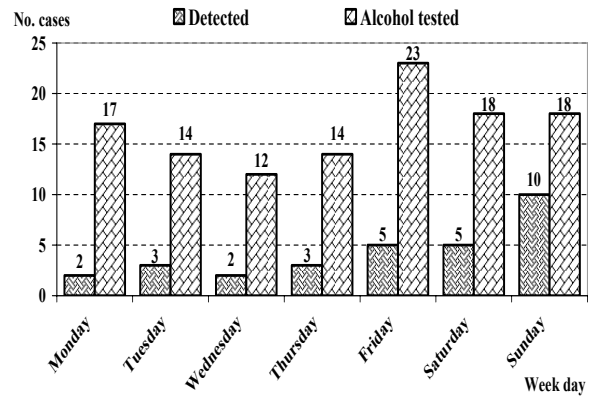


Figure 2. Distribution by weekday of the alcohol consumption

locations of the death in which the casualties have been suspected of alcohol drinking were:

- home (47 cases suspected, 5 cases detected);
- rivers (40 cases suspected, 18 cases detected);
- highway, railway (33 cases suspected, 7 cases detected);
- other places (6 cases suspected, no case detected).

The frequency of drinking varied from 10.6% (home location) to 45% (rivers).

4. Death mechanism. The main causes that subsequently led to death were:

- drowning (40 cases suspected, 18 cases detected);
- traffic collisions, including railway (33 cases suspected, 7 cases detected);
- hanging, strangulation, suffocation (25 cases suspected, 3 cases detected);
- electrocution (19 cases suspected, 2 cases detected).

Discussions

Due to the lower tolerance to alcohol compared with that of older people, children (especially boys) are more exposed to drowning, road traffic or home injuries, because alcohol may induce at this age specific psychological characteristics (thrill-seeking, over-confidence, excess or inappropriate speed when riding or driving, aggressiveness etc.).

One in four tested children was detected with alcohol ingestion, with a confirmation rate of 23.8%. Alcohol drinking increased with age, so a proportion of 61.1% of confirmed tests was represented by teenagers over 15 years.

The risk factor was identified more frequent

among male subjects, living in rural area, in the weekend, after school activities, during summer, by drowning, the place of death being running rivers.

The death mechanism and variations of alcohol consumption by seasons may be explained by the fact that during cold season, children stay longer in the house and are supervised by parents, while in the summertime, during holidays, the children spend more time outside nearby home or even a long distance away, with minimal supervision or even without parents' consent. Moreover, the summer day is longer, favorable fact for outdoor activities (i.e. swimming) compared to the cold season, and alcohol consumption is favored, often among boys.

This explains the increased number of children identified with alcohol drinking in July, the month with the highest temperatures, across all the year.

Conclusions

The analysis of personal, temporal and spatial characteristics and of the death mechanism in relation with alcohol drinking among the cases of children under 18 years registered in the Iași Medico-Legal Institute during 2004-2008, has pointed out following:

From a total number of 274 violent deaths in children under 18 years, 126 children were suspected of alcohol drinking and tested, and 30 cases were found positive.

The teenager alcohol consumer's profile: 14-15 year-old child, male, rural area, who suffered a violent trauma at the end of the week, during

summer, by drowning.

These findings emphasize that alcohol drinking among children represents a phenomenon that continues to be a major risk factor and requires complex measures.

A campaign to prevent violent deaths and alcohol drinking in childhood should be based on family, school and society involvement. A minimal exposure to risk factors, together with risk awareness may play a decisive role.

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