Factors Influencing Acute Alcohol Poisoning in Adolescents in Bulgaria

Uwarunkowania ostrych zatruć alkoholem etylowym wśród młodzieży w Bułgarii

Aim. The aim of the current study is to analyze the social dimensions of acute alcohol poisoning in children.

Methods. We have studied the patients at the age up to 18 years with acute alcohol poisoning hospitalized in the Children Toxicology Department of Emergency Hospital Pirogov, Sofia, Bulgaria, from January 1, 2007 to June 31, 2008. All of them were at teen years - between 12 and 17 years old. Data on children were retrieved from hospital medical records. We have used the inquiry method - specially created for the purpose of the survey questionnaire comprising 39 questions (location and the reason for drinking, type of alcoholic beverage, age at first drink, combination alcohol - illicit drug, type of family, education and employment of parents, frequency of alcohol consumption by parents, consecutiveness of the children in family, presence of siblings, presence of children in a single room, interests etc.).

Results. We have studied 137 Adolescents with acute alcohol poisoning. 77 are boys and 60 girls. The results demonstrate tendency of increase of the poisonings in weekends and in late afternoon and evening. No repeated hospitalization for acute alcohol poisoning in the study group for that period has been registered. The most frequent alcoholic beverage leading to intoxication was vodka (63.1 %). 64 % of the children come from complete families. Both parents have secondary education in 79.7 % and in 53.3 % both parents are employed. 60 % were the first born child in the family. The most frequent reason for alcohol consumption was meeting with friends. Conclusion. The research concerns one important medico-social problem - alcohol consumption among children. The increasing alcohol consumption leads to increasing number of acute alcohol poisonings and associated problems. The proposed preventive program may play in important role in decreasing the consequences of alcohol consumption among young people. It should be further developed and popularized among physicians.

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**Introduction**

Social problems associated with alcohol addiction have raised great concern on the issue of the increasing prevalence of alcohol poisoning in adolescents. The preventative models depend on the specific local conditions in individual countries and regions. The preventive intervention is intended to reinforce the protective factors, identified to have an influence on alcohol use in young people [3,10].

In Bulgaria, there is a high social tolerability to alcohol consumption. The study of Balabanova (1997) on alcohol consumption in Bulgaria found the pattern of drinking in Bulgaria. Drinking is most common among those living in cities, with higher education and high incomes. Heavy drinking, defined as 80 g/day or more, is rare among women, but is ascribed to 18.2 % of men. Heavy drinking was much more common among men living in Sofia and was less common among those whose financial situation was poor. At the levels of drinking reported, it can be expected that alcohol is making a substantial contribution to the burden of disease and premature mortality in Bulgaria [1]. Alcohol is increasingly being recognized as a major cause of the greater burden of disease and premature death in Eastern Europe than in the west [9].

Compared to adults, injuries due to alcohol intoxications in childhood are manifested more rapidly and more severely due to the instability of enzyme systems involved in alcohol metabolism in children [5].

**Patients and methods**

**Patients**

We have studied the patients at the age up to 18 years with acute alcohol poisoning (diagnostic category T 51.0) [11], hospitalized at the pediatric care unit, Toxicology Clinic of Emergency Hospital Pirogov, Sofia, Bulgaria, from January 1, 2007 to June 31, 2008. All of them were at teen years - between 12 and 17 years old. Pediatric care unit is only specialized one on a nationwide scale department for the treatment of acute poisoning in children.

**Data collection**

Demographic and laboratory data on children were retrieved from hospital medical records (age, sex, level of consciousness, blood ethanol level). The initial blood ethanol level was measured on admission by thin-layer chromatography for each patient. The age leading to intoxication is the vodka - vodka (2.9%). The most frequent alcoholic beverage leading to intoxication is the vodka - 63.1%. The majority of children was educated in families with more than one child (88.6%). 64% of the children come from complete (nuclear, with both parents) families. Both parents have secondary education in 79.7% and in 53.3% both parents are employed. The frequency of alcohol consumption from the parents is in connection with presence of alcohol at home (table I, II).

**Statistical analysis**

Data were analyzed using the statistical package SPSS 16.0.1. Statistical analysis was performed using Chi-squared test, Fisher’s exact test, Kolmogorov-Smirnov two-sample test, Mann-Whitney (U) test, Student’s t-test. P value < 0.05 was considered as statistically significant.

**Results**

We have studied 137 children with acute alcohol poisoning. 1022 children were hospitalized to intoxications during a investigated period. Average age of children intoxicated by alcohol was 14.91 ± 1.45 years. 77 (56.2%) are boys and 60 (43.8%) girls. The results demonstrate tendency of increase of the poisonings in weekends and in late afternoon and evening. Twenty seven children (19.7%) were hospitalized on Sunday, 21 (15.3%) on Fridays and 21 (15.3%) on Saturdays. In the 64 (46.7%) cases blood ethanol level was 1.30 mg/ml - 1.99 mg/ml and in the 55 (40.2%) was 2.00 mg/ml - 2.99 mg/ml. The highest estimated ethanol level (3.80 mg/ml) was found in the blood of a 17 year-old boy. No repeated hospitalization for that period has been registered. The consumption implemented usually outdoors among friends and classmates. The location where children got intoxicated was at park (56.2%), at home of friends (26.8%) and clube (17.0%). The mean consumed quantity of alcohol is higher among the girls (79.68 g of alcohol) compared with 55.98 g among the boys (P < 0.001). The reason for alcohol consumption was meeting with friends 93 cases (68.9 %), birthdays (3.7%), emotional disorders (5.1 %), family celebration (3.7 %) and other reason in 4 cases (2.9 %). The most frequent alcoholic beverage leading to intoxication is the vodka - 63.1%. The majority of children was educated in families with more than one child (88.6%). 64% of the children come from complete (nuclear, with both parents) families. Both parents have secondary education in 79.7% and in 53.3% both parents are employed. The frequency of alcohol consumption from the parents is in connection with presence of alcohol at home (table I, II).

**Availability of information self reported by a child on frequency of father’s alcohol consumption and presence of alcohol at home**

<table>
<thead>
<tr>
<th>Weekly distribution of alcohol consumption</th>
<th>Alcohol at home</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>0 times a week</td>
<td>24</td>
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<td>1 times a week</td>
<td>4</td>
<td>13,33</td>
</tr>
<tr>
<td>2 times a week</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3 times a week</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5 times a week</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7 times a week</td>
<td>2</td>
<td>6,67</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100,00</td>
</tr>
</tbody>
</table>

* Abbreviations: Sp - standard error of a proportion; † P - P value; ‡ n.s - No statistically significant association

**Availability of information self reported by a child on frequency of mother’s alcohol consumption and presence of alcohol at home**

<table>
<thead>
<tr>
<th>Weekly distribution of alcohol consumption</th>
<th>Alcohol at home</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>0 times a week</td>
<td>40</td>
<td>93,02</td>
</tr>
<tr>
<td>1 times a week</td>
<td>3</td>
<td>6,98</td>
</tr>
<tr>
<td>2 times a week</td>
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</tr>
<tr>
<td>3 times a week</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5 times a week</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7 times a week</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* Abbreviations: Sp - standard error of a proportion; † P - P value; ‡ n.s - No statistically significant association
stitutional forms of communication (cinema, music, non formal contacts etc.) at the expense of the institutional ones like school and family. Such factors as the kind of family, and being a single child in the family were not associated with alcohol consumption alone (P > 0.05). The majority of single children in the family (n = 31) had a room of their own (72.1%). No statistically significant association between the availability of a child's own room and the gender of the children, if more than one in the family, has been detected (P = 0.818). In practical terms, children in single parent families had no less pocket money than children in complete families. The students have approximately 1.20 euro daily.

Discussion
Our study represents the first systematic research of the alcohol intoxications among children in Bulgaria. We analyzed the data for a single Children Toxicology Department in Sofia. 1022 children were hospitalized to intoxications during a investigated period. The results from our study coincide with data from other European countries studies.

A Slovak Republic study found that the average age of the patients with alcohol intoxication presenting to hospital was 15.1 ± 1.7. The proportion of children admitted with alcohol intoxication increased every year [4]. Our study showed the mean age of alcohol poisoned patients (mean ± standard deviation) 14.91 ± 1.45 years.

Croatian study by Bitunjac and Saraga [2] found that 73.2% of children were hospitalized on weekends and 79% of children got intoxicated outside their homes. Our study showed that children usually drank outside their homes (56.20%), and mostly on weekends (35%).

Lamminpää reported that motives leading to alcohol intoxication are a wish to get drunk, experimenting and problems in human relations. The underlying problems are often family-related, such as divorce, an alcoholic parent and a lower socioeconomic group. Underlying family problems were usual; in 45% of the cases the family was broken and in 31% of the families one parent was an alcoholic. The lower the mother's social group was, the higher the frequency of alcohol intoxication. Previous intoxications were reported in 9% of the cases. Most of the children's intoxications were experimental (49%) [6,7]. The most frequent reason for intoxication in our study was meeting with friends - 93 cases. Influence of 'the group' is the main cause for alcohol consumption in adolescence. Most of children are experiencing communication problems and the alcohol consumption 'helps' them to overcome this problem and make communications easier. The conveyance of the center to socialization from the family towards the group leads to loss of emotional attachments to parents and their replacement with relation with the lots of people in the group, less influencing the personality as a whole, but forming certain behavioral models.

However, little is known about socio-economic differences in unhealthy lifestyles during adolescence. Parental socio-economic status is only of limited importance for episodes of drunkenness in adolescence [11]. Like social event the alcohol intoxications depends from a lot of familiar, cultural, educational, psychological and behavioral factors. The parents with secondary education predominated. The intoxications were more frequent among the children with good results in the school. For majority of adolescents alcohol intake correspond to attempt for building self-esteem.

We were developed a program for active selective prevention of the alcohol intoxication among children with aim to set limits of all health, social and economic damages due of alcohol by: limiting the demand for alcoholic beverages, the consumption of alcohol, increasing the quality of health education, upbringing, and value formation guidance; creating a system for control at schools, in the family, in the social group (among friends), and during leisure time. The model is based to the psychological and social approach. The concept of author is to develop the different skills toward a positive direction of children's life. A very important elements are there ability of resistance and the formation of habits for social frame of mind, communication skills and desire for change of hazardous behavior by thinking, preparation and execution. The psychological aspect of prevention is directed toward the formation of cognitive attitude to be successful. In the context of the health promotion the focus is to strengthen of all aspects of the life [8].

References