

THE DEATHS IN ACUTE ETHANOL INTOXICATION

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Abstract: Romania ranks among the first places in the European Union in terms of the amount of alcohol consumed, harmful consumption pattern and alcohol-related mortality both in women and men. The paper presents the results of a retrospective epidemiological inquiry over the deaths due to acute alcohol intoxication (except physical violence), registered in the Forensic Service of Sibiu County in a 10 year period. The results show that death from acute alcohol intoxication accounted for 4% of the violent deaths. Their frequency was 2-fold higher during the weekend and up to 5 times higher during the cold periods of the year. Deaths are 7 times frequent among men and 3 times more common among rural population. People aged 40-60 have a 3-fold higher risk of dying from alcohol abuse. Hypothermia (in winter) and dilated cardiomyopathy are the main factors contributing when acute intoxication is the main cause of death. Hypothermia and mechanical asphyxia by drowning are the main causes of death when acute ethanol intoxication was a competitive factor.

INTRODUCTION

Alcohol is the most widespread substance used both for relaxing and as an addictive drug and the third risk factor for premature disease and death, after smoking and high blood pressure.(1) The trend in alcohol consumption and the effects of alcohol consumption on health depend on both the socio-economic and cultural context of a country, the availability of alcohol, and the effectiveness of national alcohol policies and the volume of alcohol consumed by the consumption pattern and sometimes the quality of alcohol. Preventing the consequences of harmful alcohol consumption is one of the priority areas of public health. The harmful effects of alcohol occur in people who have a harmful consumption pattern. According to World Health Organization, harmful alcohol consume includes acute ethanol intoxication, “assimilated to drinking over 60 grams of pure alcohol in men, and 40 grams of alcohol in women on one occasion”(2) More than 3 million deaths per year are due to alcohol-related causes, accounting for more than three quarters of the global WHO European mortality rate (7.6% of deaths in men and 4% of female deaths).(3) The costs of medical, legal and economic consequences of alcohol consumption amount to 1.3% of a country’s Gross Domestic Product (GDP).(4)

Romania ranks third in the European Union in terms of the amount of alcohol consumed (after Belarus and Lithuania), the second place in Europe as an excessive consumption pattern (more than 5 units/doses of alcohol on one occasion), the first place in Europe for alcohol-related mortality among women and fourth place in Europe for alcohol-related mortality in men.(5,6,7,8,9) According to the results of international studies in Romania, 15,175 deaths are due each year to alcohol consumption, of which 11,659 among males and 3,516 among women.(10) Over 14% of potential life years in women and 25.4% in men are lost through alcohol-related deaths.(11)

The trend in alcohol consumption and the effects of alcohol consumption on health depend on both the socio-economic and cultural context of a country, the availability of

alcohol, and the effectiveness of national alcohol policies.

PURPOSE

Clinical and epidemiological characterization of the deaths in acute ethanol intoxication in Sibiu County within 2007-2017.

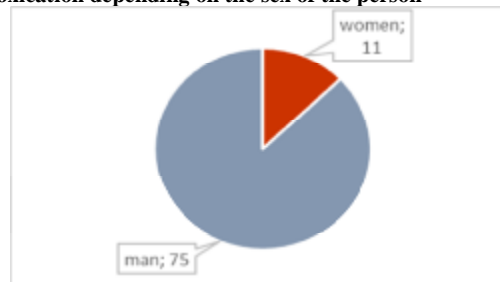
MATERIALS AND METHODS

The paper presents the results of a retrospective epidemiological inquiry of 2,247 of deaths registered in the Forensic Service of Sibiu County over a period of 10 years (2007-2017). The data were collected from the Autopsy Reports and the Toxicological Examination Bulletins.

RESULTS AND DISCUSSIONS

In the Forensic Service of Sibiu County, 2,247 deaths were recorded during the study period. Following the forensic autopsy, 42% of the deaths were due to violent cause, in the rest of the cases a pathological cause was identified. Of the 944 violent deaths, 86 cases (4%) of violent deaths were due to acute ethanol intoxication. Regarding gender distribution, death in acute ethanol intoxication was seven times more common in men.

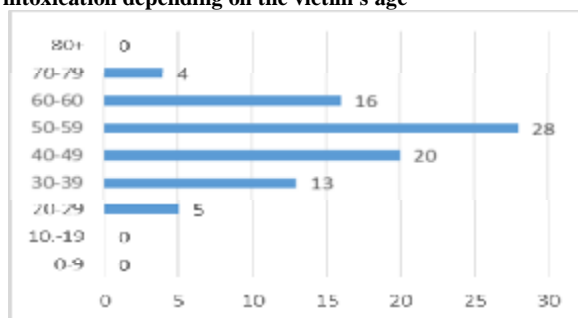
Figure no. 1. Distribution of deaths due to acute ethanol intoxication depending on the sex of the person



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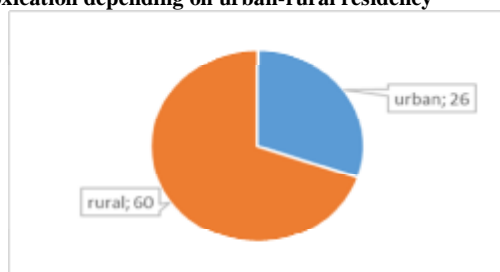
Most deaths of ethanol etiology occurred in active ages. Approximately one third of the deceased were aged 50-59, and a quarter between 40 and 49. It should be noted that most of the victims for whom data was obtained from entourage were chronic alcohol users. Corroborating the chronic alcoholism identified in the 4th decade of age with 6 percent of deaths aged 20-29 years, the picture of an early onset of harmful alcohol consumption is outlined.

Figure no. 2. The distribution of deaths due to acute ethanol intoxication depending on the victim's age



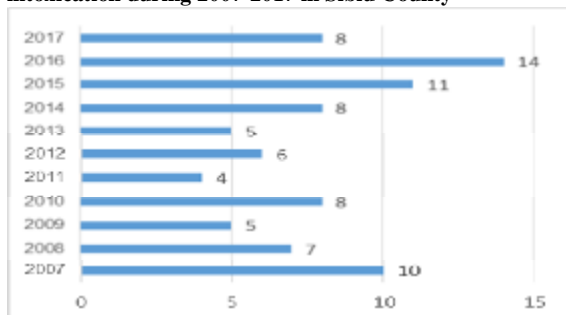
Two thirds of people who die from acute alcohol intoxication come from rural areas, which indicates a clear association between alcohol-related mortality and deprived areas in terms of socio-cultural, educational and lifestyle risk factors.(12)

Figure no. 3. Distribution of deaths due to acute ethanol intoxication depending on urban-rural residency



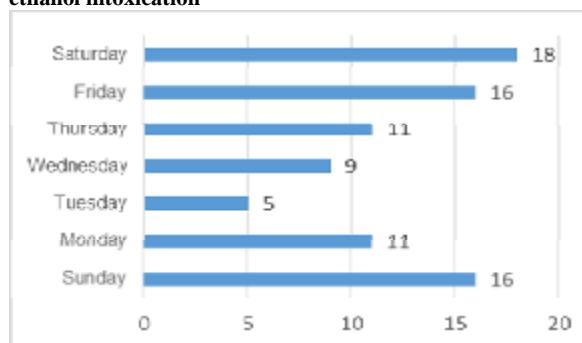
The number of cases of death in acute alcohol intoxication had fluctuating evolving, with variations between 4 cases in 2011 and 14 cases in 2016. The highest number of deaths in ethanol etiology occurred in 2015 and 2016. Thus, although alcohol-related mortality declines steadily in the Mediterranean and Central-Western European countries, Romania continues to maintain a steady trend, being one of the East-European countries that contributes significantly to the burden of alcohol-related mortality in Europe.(3)

Figure no. 4. Dynamics of deaths due to acute ethanol intoxication during 2007-2017 in Sibiu County



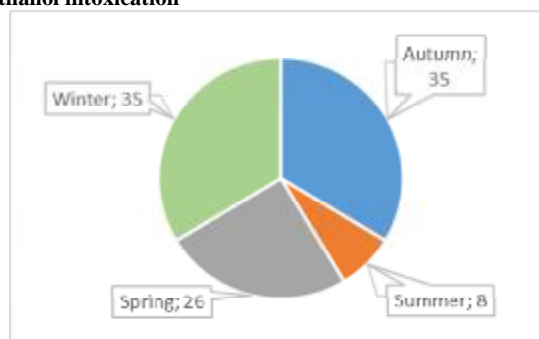
The progressive increase in the amount of alcohol consumed with the weekend approach leads to a 2 to 4-fold increase in secondary deaths. Consuming large amounts of alcohol, especially during the weekend, alternating with periods of moderate alcohol consumption or abstinence is a consumption pattern specific to Romanians' and Nordic inhabitants that is highly predictive for the most severe medical, legal and social consequences.(2)

Figure no. 5. Weekly distribution of deaths due to acute ethanol intoxication



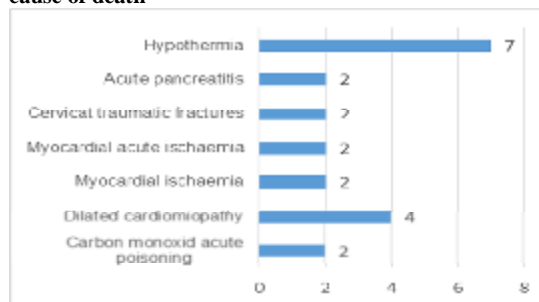
Only 9% of deaths are recorded by alcohol intoxication during the summer, representing 2 to 5 times less than in cold seasons. On the contrary, literature indicates that alcohol consumption during the Christmas period might contribute to excess winter mortality.(13)

Figure no. 6. Seasonal distribution of deaths due to acute ethanol intoxication



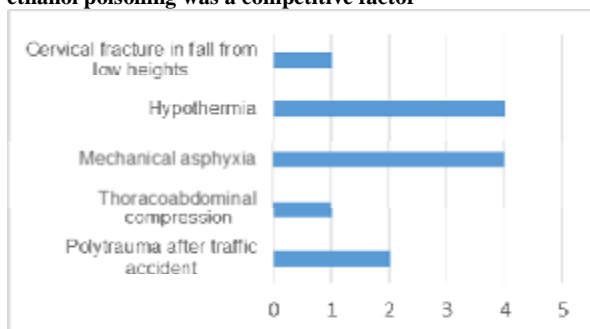
The main contributing factors in deaths due to acute alcoholic intoxication are hypothermia (33.33%), the determinant of the deaths in winter in the hard drinkers, i.e. dilated cardiomyopathy (19%), secondary to continuous chronic alcohol consumption in chronic alcoholism.

Figure no. 7. Distribution of competitive factors in the deaths in which acute ethanol intoxication was the main cause of death



Main death causes were hypothermia and mechanical asphyxia by drowning, each responsible for one-third of deaths when acute ethanol intoxication was a contributing factor. A total of 17 deaths were due to polytrauma in road accidents. Less than 1 in 10 deaths were caused by cervical spine injury secondary to fracture by fall or thoracoabdominal compression.

Figure no. 8. Distribution of death causes in which acute ethanol poisoning was a competitive factor



CONCLUSIONS

Over the past 10 years, 86 deaths due to acute ethanolic intoxication have been recorded in the Sibiu County Forensic Service, accounting for 4% of the violent deaths.

Their number was almost double during the weekend compared to the rest of the week and up to 5 times higher during the cold periods of the year compared to the summer period.

Deaths are 7 times more frequent among men and 3 times more common among rural population.

People aged 40-60 have a 3-fold higher risk of dying from alcohol abuse.

Hypothermia (in winter) and dilated cardiomyopathy are the main factors contributing to the deaths.

Hypothermia and mechanical asphyxia by drowning are the main mechanisms of death in acute alcoholic intoxication.

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