

WORKPLACE ACCIDENTS CAUSED BY ALCOHOL CONSUMPTION

TEODORA MIHAELA OLTEAN¹

¹Sibiu Forensic Medicine Service

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Abstract: The aim of the present research is to highlight the negative outcome of alcohol consumption at the workplace, which may lead to workplace accidents. The statistical data show that the number of victims handling equipment under the influence of alcohol and cause accidents reaches the amount of 10%. High blood alcohol level causes sudden changes of mood and conflictual temper and alcohol ingested reduces both, coordination and the speed of reaction of the organism, and it also weakens the sight, the hearing, and influences thinking and discerning capacity. In the present research we comprised 11234 toxicological analysis reports performed in the Service of Forensic Medicine from Sibiu County, during 2005-2013, on living persons. No case of alcohol testing was identified in surviving victims of workplace accidents, due to lack of legislation rules regarding alcohol consumption at workplace. The blood alcohol content was positive (higher than 0.8 g‰) in a third of the victims deceased in workplace accidents and negative in almost two thirds of the victims.

INTRODUCTION

Concerning the negative role of alcohol, the statistical data show that the number of victims handling equipment under the influence of alcohol and cause accidents reaches the amount of 10%.^(1,2)

Alcohol should not be consumed in high quantities in order to prevent difficulties at the workplace. Most of the efficiency problems caused by alcohol are related to low levels of alcohol, generated by a drink during lunch or it could be the result of a party from the previous night.

Ingested alcohol reduces both coordination and the speed of reaction of the organism, and it also weakens the sight, the hearing, and influences thinking and discerning capacity. High blood alcohol level causes sudden changes of mood and conflictual temper.

At the workplace, alcohol consumption induces the decrease of productivity and individual performances, by an ineffective use of work time, and it increases the risk of accidents, by putting in danger the life of the consumers and their colleagues. For these reasons, we consider that prohibition of alcohol in the workplace is a legitimate measure of both individual and collective security.^(2,4)

To assess and specify the degree of ethylic intoxication it is necessary to perform a clinical and a laboratory exam. The clinical exam offers responses to what is legally called "inebriation", which is possible when the blood alcohol content is under 0.8%.^(1,2,3)

The absorption and elimination of alcohol from the organism is a dynamic process mirrored by the values of blood alcohol content over time. It is considered that this particular dynamics can be graphically represented in the Witmark curve regarding alcohol absorption and elimination. The coefficient of rhythmic elimination of alcohol (elimination factor), with an average of 0.15‰ per hour, with all the individual deviations in either direction, preserves its practical value.^(5,6,7)

The absorption speed is mainly determined by the strength of the beverage, by quantity and by stomach fullness in

the period of consumption. To all these some individuals factors concerning the consumer's health status can be added.^(7,8,9,10)

Alcohol is eliminated partially through the airways, which serves as means for indirect determination of blood alcohol content through the analysis of exhaled air. Alcohol is eliminated through urine, hence the report of urine / blood alcohol content which is of 1.35-1.4 (the value is valid only after an hour from the maximum concentration of blood alcohol content).⁽¹¹⁾

According to the report issued by the International Labor Office, over 30% of the workplace accidents occur due to alcohol consumption. Law no 319/2006 regarding labor security and health does not explicitly forbid alcohol consumption at the working place, and allows each employer to establish it through intern regulations.^(12,13,14)

Most of the employers, especially in the field of constructions and transportation, use the rapid test method by breathalyzer tests. The method is superficial, nevertheless, and it helps detect the blood alcohol content and few employers analyze this problem by taking into account the individual performances.^(12,13)

PURPOSE

The aim of the present research is to highlight the negative outcome of alcohol consumption at the work place, which may lead to workplace accidents.

MATERIALS AND METHODS

In the present research we comprised 11234 toxicological analysis reports performed in the Service of Forensic Medicine from Sibiu County, during 2005-2013, on living persons. No case of alcohol testing was identified on surviving victims of workplace accidents, due to lack of legislation rules regarding alcohol consumption at workplace⁽²⁾; however, in deceased victims in workplace accidents there were identified analysis reports corresponding to the 89 autopsies performed on the deceased victims included in the

¹Corresponding author: Teodora Oltean, Str. Săliște, Nr. 8, Sibiu, România, E-mail: olteanteodora@yahoo.com, Phone: +40740 506581
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present study. Among the 89 toxicological analysis reports for alcohol testing, 7 were irrelevant due to the elapsed time until hospitalization, which was enough to drop the blood alcohol content to zero.

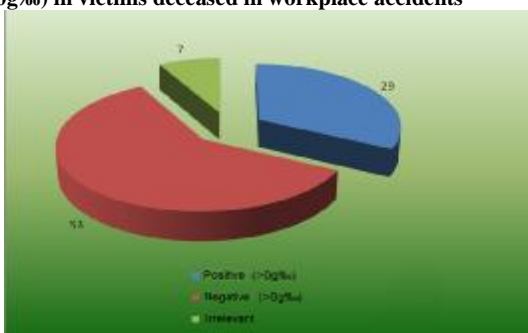
RESULTS

The results obtained during the period 2005-2013 on the damaging effect of alcohol consumption within the workplace are presented on the tables below. In the first table is presented the frequency of positive blood alcohol content in victims deceased in workplace accidents and the second table is showing the distribution of positive blood alcohol content by value.

Table no. 1. Frequency of positive blood alcohol content (>0g‰) in victims deceased in workplace accidents

No.	Type of alcohol blood content	No of determinations	Percentage (%)
1	Positive (>0g‰)	29	32.58
2	Negative (>0g‰)	53	59.55
3	Irrelevant	7	7.87
4	Total	89	100

Figure no. 1. Frequency of positive blood alcohol content (>0g‰) in victims deceased in workplace accidents

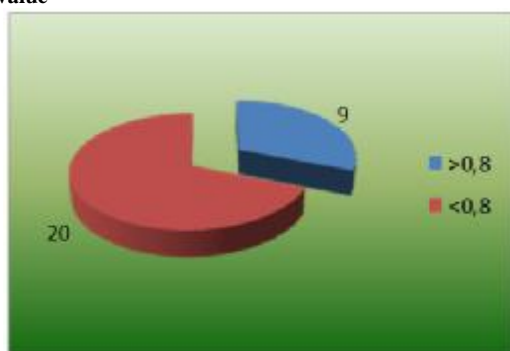


A third (32.58%) of the deceased victims in workplace accidents had positive results at the tests for blood alcohol content taken from corpse (table no. 1, figure no.1).

Table no. 2. Positive blood alcohol content distribution by value

No.	Value of blood alcohol content (g‰)	No. of determinations	Percentage (%)
1	>0,8	9	31.04
2	<0,8	20	68.96
3	Total	29	100

Figure no. 2. Distribution of positive blood alcohol content by value



It can be noticed that a third of the positive results had a value higher than 0.8 g‰ (Table no. 2, Chart no.2).

These results can be explained by the fact that inhibition is low when alcohol content reaches such values, the consumer has a low sense of judgement, and also a false impression of safety offered by alcohol ingestion.

It must be taken into account the fact that the results were obtained from deceased persons in workplace accidents; most likely, the number of survivors that were under the influence of alcoholic beverages must be higher.

DISCUSSIONS

This research represents a link of the development of purpose and allows extending the areas of knowledge in other areas of medicine.

Several studies in the literature support the objectives achieved by me in this article and in future studies can be deepened and other research in terms of workplace accidents caused by alcohol consumption.

CONCLUSIONS

- The blood alcohol content was positive in a third of the victims deceased in workplace accidents and negative in almost two thirds of the victims.
- In a small part of the cases, the alcohol testing was irrelevant due to the elapsed time between hospitalization and death.
- The value of positive blood alcohol content was higher than 0.8 g‰ in third of the cases. Alcohol ingestion confers a false sensation of safety and a decrease of inhibition, even when the blood alcohol content is under 0.8 g‰.

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