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ORIGINAL ARTICLE

Acute poisonings with non-commercial alcohol

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Abstract: Poisonings with alcohol of unknown origin in the material presented were of a medium severe course, and concerned relatively young people who were sometimes addicted to alcohol. These poisonings were accompanied by toxic kidney and liver impairment. All cases of poisonings took a favourable course. A few patients who reported for catamnesic examination had slight maintaining enzymatic changes in the liver, with a normal levels of other measurable indicators of poisoning.

Key words: non-commercial alcohol, acute poisoning

INTRODUCTION

Trans-border exchange of not only cultural, but also material goods is specific to frontier regions – especially where there exist differences in the prices of consumer commodities, including stimulants – cigarettes and alcohol.

Such procedures continue to exist, despite strict administrative-customs limitations, resulting in the availability in markets of non-commercial alcohol which create risk to the health and lives of opportunist consumers encouraged by low prices of the products. In recent years, a systematic increase has been observed in the number of acute poisonings with alcohol of unknown origin, especially among young people. The consequence of this type of poisoning is a direct threat to the health and lives of consumers, and sometimes the development of far-reaching systemic changes following the poisoning, as well as changes in the psychical sphere of young people [1, 2, 3, 4, 5, 6].

OBJECTIVE

The objective of the study in the form of a clinical outline is the analysis of acute poisonings with alcohol of unknown origin in the Lublin Macroregion, and evaluation of systemic health consequences of these poisonings, both in the somatic and psychical spheres.

MATERIALS AND METHODS

The study materials were clinical-toxicological records concerning patients who were hospitalized in the Toxicology Ward at the Clinic of the Institute of Agricultural Medicine in Lublin due to acute poisoning with alcohol of unknown origin.

The study covered a group of 87 people – 72 males (mean age 43) and 15 females (mean age 37), with consideration in medical history taking of the following: place of residence, marital status, source of maintenance, and drinking habits.

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In addition, the parameters of toxic impairment of the liver and kidneys were evaluated from the aspect of the level of alcoholemia of ethanol and non-consumption alcohol.

Ethyl alcohol was determined by the immunoenzymatic method. Markers of the toxic impairment of organs were determined in body fluids by the methods generally adopted in toxicological analytics, with the use of Bayer Express Plus biochemical analyser. Methyl and glycol alcohol was determined by the colorimetric method.

RESULTS

Among the total number of 87 patients poisoned with alcohol of unknown origin there were 72 males (mean age 43) and 15 females (mean age 37). As many as 63 patients in the study were urban inhabitants, while 24 came from rural areas. Source of maintenance of patients: 36 were employed, 16 received health benefit, while 35 had no permanent source of income. The greatest number of patients examined were married – 45; 22 were unmarried, who were mainly young people. 20 patients of both genders were divorced (Tab. 1).

Ethyl alcohol was noted in the whole group of 87 people (average amount: 3.5‰ ± 1.59). The presence of methanol was observed in 76 patients in the study (mean level of methanol: 5.4 mg% ± 3.5). Ethylene glycol in blood was detected in 19 people examined (mean level: 5.0 mg% ± 4.27.

Transaminases were the markers of toxic liver impairment in the poisonings. An increase in the value of these enzymes was observed in 47 patients poisoned, to the value of 140.39 u. ± 148.96 aspargine transaminase on average, and to the value of 112.62 u. ± 90.04 alanine transaminase. In 23 patients in the study, a relatively small increase was noted in the level of bilirubin – 1.06 mg% ± 0.78 on average, exceeding the normal level only **unitary.**

Similar observations concerning the toxic effect of the mixture of non-consumption alcohol and ethanol have been reported by other authors [7, 8, 9, 10, 11, 12] (Tab. 2).

In 18 of the patients poisoned, the presence of glycol and methanol in alcohol of unknown origin resulted in changes in the parameters of toxic kidney impairment, with the occurrence of: albuminuria, erythrocyturia, leukocyturia, and the presence of renal casts in the urine during the course

Table 1 General characteristics of patients poisoned

No.	Age	Place of residence		Marital status			Source of maintenance		
N = 87	X ± SD	uban area	rural area	unmarried	married	divorced	employed	unemployed	receiving benefit
males 72 (83%)	43,26 ± 10,89	63	24				36	35	16
females 15 (17%)	37,2 ± 2,47			22	45	20			
Percentage of total number of patients examined		72%	28%	25%	52%	23%	41%	40%	19%

Table 2 Composition of alcohol examined and changes observed in markers of liver impairment

Alcohol of unknown origin	Composition of alcohol consumed			Markers of toxic liver impairment		
N = 87	ethanol Ñ = 87 (100%)	methanol Ñ = 76 (87%)	glycol Ñ = 19 (22%)	AspAT Ñ = 47 (54%)	AlAT Ñ = 47 (54%)	Bilirubin Ñ = 23 (26%)
X	mean alcohol level			arithmetic mean of changes		
± SD	3,5‰ ± 1,59	5,4mg% ± 3,5	5,0mg% ± 4,27	140,39 u. ± 148,96	112,62 u. ± 90,04	1,06 mg% ± 0,78

of poisoning. These patients showed a transitory increase in the biochemical markers of kidney impairment, such as urea – up to 234 mg%, creatinine – up to 12.8 mg%, and uric acid – up to 13.1 mg%, on average. The patients in this group showed transitory electrolite disorders pertaining to potassium and sodium in the blood; moreover, they also showed disorders of diuresis (isostenuria, oliguria) associated with the phases of acute poisoning with non-consumption alcohol (Tab. 3).

Table 3 Compilation of changes in parameters of toxic kidneys impairment in patients examined

No.	Albuminuria	Erythrocyturia leukocyturia	Presence of casts	Biochemical markers		Uric acid (mg%)
N				urea (mg%)	creatinine mg	
					x	
18	+ + +	+ + +	+ +	234,0	12,8	13,1

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