

A TOXICOLOGICAL INVESTIGATION OF ALCOHOL CONSUMPTION IN SUBJECTS INVOLVED IN ROAD ACCIDENTS

Linda Matua¹, Mirnela Cinije², Besnik Jucja¹, Elizana Petrela³

1.Faculty of Pharmacy, University of Medicine, Tirana,

2.Institute of Forensic Medicine, Tirana,

3.Faculty of Public Health, University of Medicine, Tirana, Albania.

Abstract

Aim: Road accidents are one of the main problematic issues in Albania and their number is increased significantly in the last decade. These road accidents are often related to the use of alcohol in the persons involved in them, and presenting an interesting point to start an investigation to see how do different subjects (male, female) with an BAC ≥ 0.5 g/l (that is the legal Road Book cut off limit of consumption of alcohol in Albania) relates to their characteristics: age, sex, and vehicle type (if there is one) or pedestrians.

Materials and methods: Blood alcohol samples are taken from subjects involved in car accidents and analyzed by GC -HS (Gas-Chromatograph Head Space) Shimadzu QP 2010 in the Laboratory of Forensic Toxicology in the Institute of Forensic Medicine in Tirana which is the only authorized institution to perform the toxicological investigation of road accidents that happen in Albania.

Results: In the final cohort of 235 persons involved in traffic accidents, alcohol was found in concentrations above the legal limit in samples from 43% of subjects. BAC exceeded 0.50 g/l mostly in male subjects (99%), in car drivers (57.4%), and pedestrian (28.7%), also in the subjects over 50 years old (29.7%).

Conclusion: Men whose blood alcohol concentration exceeds 0.5 g/l have the chance to crash 18% more than females. Car drivers who have positive blood alcohol concentration have the chance to crash 2.4 times more than passengers, while pedestrians who blood alcohol concentration exceeds 0.5 g/l have the chance to crash 6.3 times more than passengers.

Keywords: alcohol, road accidents, toxicological investigation.

Introduction

Traffic accidents cause great human and economic suffering in modern society, and their prevention

has long been a priority issue. Alcohol intoxication is regarded as one of the most important causes of traffic accidents and has been extensively investigated both experimentally and in epidemiological roadside studies [1].

For this reason, the European Union took action to promote road safety by combating driving under the influence of alcohol in program for 1997-2001 [2]. According to the law on Road Traffic Safety in Albania the legal limit of blood alcohol concentration (BAC) for driving in Albania is the value of 0.5 g/l [3].

In many countries it has been demonstrated that alcohol continues to be the most prevalent drug causing traffic crashes [4-7], because subjects with a positive blood alcohol concentration are more likely to be at fault in a collision and more likely to be fatally injured than non drinking drivers [8].

Our objective is to examine how a positive blood alcohol concentration (BAC ≥ 0.5 g/l) at the time of crash is associated with the other factors during a road accident.

Methods

Subject

The subjects of this investigation are persons involved in road accidents, whose blood samples were submitted in the Laboratory of Toxicology in order to analyze their BAC. In this report we present results from the toxicological investigation performed for a group of 235 subjects who were involved in road accidents during 2010-2012. These cases represented only a portion of those involved in traffic accidents, not all subjects were included. Only the suspected ones were subjected to alcohol testing, and the decision was made by the police.

Sampling and handling

Blood sampling in living people, was done shortly after the accident, venous blood was taken by a physician or registered nurse in the presence of