Traffic Traumatism Resulting in Deadly Consequences in the Region of Banjaluka

Introduction: Traffic accidents are a global problem, in which over 1.2 million people on the planet are killed annually. Detailed consideration of these issues is necessary in order to take appropriate preventive measures.

Patients and methods: In this retrospective study we used the material of the Department of Forensic Medicine Banjaluka. We have analyzed the data of autopsies of people killed in traffic accidents during the period of 2010 - 2012. We examined the gender and age distribution, type and distribution of injuries, the cause of death for certain groups of participants in traffic, and the presence of alcohol in the victims. Data on the alcohol use were obtained from the Forensic Unit of Ministry of Internal Affairs of Republic of Srpska (gas chromatography).

Results: Of 186 autopsied, 160 (86%) were male and 26 (14%) women. Two particularly vulnerable groups were the third decade of life and older age. Head injury is the most common cause of death (45.7%). Drivers (32.3%) and pedestrians (28%) were the most common victims, and in both groups the leading cause of death was head injuries. Their distribution of injuries is similar, with more frequent injuries to the spine, pelvis and lower extremities of pedestrians.

Conclusion: Victims are more frequently men, and out of 60 victim drivers 58 were male! Is it because of the higher incidence of men in the group of drivers and also their behavior in traffic? Number of victim drivers probably was something higher, but unfortunately, in some cases the prosecution is not seeking for the autopsy. Of the total number of victim drivers, 41.7% belonged to the third decade of life. The most common cause of death was head injury. The two most vulnerable groups are drivers and pedestrians, with dominant head and chest injuries. Alcohol abuse is a significant part of the problem. Results of this study generally do not deviate from the data found in the world literature.

KEYWORDS: Victims of traffic accidents, autopsy, cause of death, head injuries

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of traffic users, which is also more evident in the less developed countries.5-8

The aim of the study to consider the representation of deaths and specificity of injuries in certain groups of traffic participants and to identify risk groups. These information are necessary for the design and taking any preventive actions aimed at increasing of traffic safety and reducing the number of casualties.

Patients and Methods
In this retrospective study we used the data from autopsy reports of deceased participants in traffic accidents, autopsied at the Department of Forensic Medicine of Republic of Srpska in Banjaluka, in the period of 2010 – 2012. We examined the gender and age distribution of the deceased, the type and distribution of injuries, and the cause of death for certain groups of traffic users. The research included serious injuries which, according to the characteristics and localization, directly or indirectly endanger lives of the injured. The Criminal Law of Republic of Srpska classifies these injuries as severe or qualified form of severe body injuries.9 Superficial injuries of the skin and subcutaneous tissue (abrasions, bruises, contusions, lacerations), which were numerous in almost all victims, were not the subject of this study, as they are of importance in determining the mechanism of injury, but have an insignificant effect on the mechanism of death.

Results
Out of a total of 462 autopsied during the observed period, 186 (40.2%) were fatally injured traffic users; 160 (86%) men and 26 (14%) women. In relation to the type of traffic users, most of fatally injured were drivers (total of 60, of whom 58 men!), followed by pedestrians (52, 14 of whom were women), front seat passengers (28), rear seat passengers (16), motorcyclists (14), cyclists (13) and three tractor drivers. According to the age there were two noticeable peaks: the third decade of life and older age (the seventh decade and older).

Discussion
Men are more frequently victims (85%), which could only partly be explained by their greater participation in traffic. In the world literature such drastic gender distribution was registered in the work of Indian authors, the population of New Delhi.10 The fact that out of 60 died drivers, 58 are male, and only two women, perhaps tells the story about the behavior of male drivers in traffic. Nearly half of the killed drivers are in the third decade of life.

Studies conducted globally show that the number of pedestrian deaths in traffic accidents varied significantly and were inversely proportional to the development level and economic well-being of society. In highly developed countries, pedestrians make up about 15% of the total fatalities in traffic accidents, in middle developed countries about 29%, while in some African regions even 55% of the total number of dead traffic participants.5-6 In our study, pedestrians make up 28% of the total number of deaths in traffic accidents.

Increased representation of casualties among the elderly could be explained by their reduced dexterity, agility, concentration, attention and generally weaker immunity to trauma. However, to explain the increased number of casualties in the third decade of life, it would be necessary to take into account the temporal distribution of injury (days of the week, time of day or night), the role of alcoholism and intoxication, and possibly link it to risky behavior modes.

The most common cause of death among drivers and pedestrians is head injury, followed by polytrauma and chest injuries, which is in line with numerous researches.11-13 This confirms the view that head of pedestrians, in spite of improvements in protection systems and stricter legislative regulations, remains insufficiently protected.14-18

Conclusion
Drivers and pedestrians are the two most vulnerable groups, with a similar distribution of injuries on the body.
While unfatally injured pedestrians have a certain peculiarities of injuries, which separates them from drivers, in case of death injury these differences fade. However, it is noticeable that abdomen and upper extremities are injured more frequently in drivers, while head, spinal column, pelvis and lower limbs are more affected in pedestrians. More than a half of died drivers and pedestrians were under the influence of law prohibited blood alcohol concentration at the time of injury.

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Saobraćajni traumatizam sa smrtnim posljedicama u Banjalučkoj regiji

APSTRAKT
Uvod: Saobraćajne nezgode su globalan problem, u kojima godišnje smrtno strada preko 1,2 miliona ljudi na planeti. Detaljnije sagledavanje ove problematike neophodno je radi preduzimanja adekvatnih preventivnih mjera.
Ispitanici i metode: U ovoj retrospektivnoj studiji upotrebljen je materijal Zavoda za sudsku medicinu u Banjaluci, obdukovani nastradali u saobraćajnim nezgodama u periodu 2010. - 2012.g. Posmatrani su polna i starosna distribucija, vrste i distribucija povreda, uzrok smrti za pojedine grupe u saobraćaju, te prisustvo alkoholisanosti kod nastradalih. Podaci o alkoholisanosti pribavljeni su od Jedinice za forenziku MUP RS (gasnom hromatografijom).
Rezultati: Od 186 obdukovanih, 160 (86%) je muških, 26 (14%) ženskih. Treća decenija života i starija životna dob su posebno ugrožene grupe. Povreda glave je ubjedljivo najčešći uzrok smrti (45,7%). Vozači (32,3%) i pješaci (28%) najčešće stradaju, a kod obe grupe vodeći uzrok smrti je povreda glave. Njihova distribucija povreda je slična, uz češće povređivanje kičme, karlice i donjih ekstremiteta kod pješaka.
Zaključak: Muškarci stradaju znatno češće, a od 60 poginulih vozača, 58 je muških! Da li zbog veće zastupljenosti muških u ovoj grupi ali i ponašanja u saobraćaju? Broj stradalih vozača vjerovatno je i nešto veći, nažalost, u pojedinim slučajevima tužilaštva ne traže obdukciju. Od ukupnog broja poginulih vozača, 41,7% pripada trećoj deceniji života.Povreda glave je najčešći uzrok smrti. Dvije najugroženije grupe su vozači i pješaci, sa dominantnim povredama glave i grudi. Zloupotreba alkohola predstavlja značajan dio ovog problema. Rezultati iz ove studije uglavnom ne odskaču od svjetske literature.
KLJUČNE RIJEČI: Žrtve saobraćajnih nezgoda, obdukcija, uzrok smrti, povreda glave