ORIGINAL ARTICLE

Investigating Drug Abuse among Urban Traffic Accident Drivers Referred to Shahid-Beheshti Hospital of Babol in First Half Year Of 1397

ALI ASGHAR MANOUCHEHRI[1], SARA RAZAEE[2], AKRAM HOSSEINI[3]

ABSTRACT

Background: Based on various studies, it seems that a large proportion of road traffic crashes are related to driving under the influence of drugs uses.
Aim: To investigate the prevalence of opium, psychoactive and drugs use in drivers who experienced road traffic accidents and referred to Shahid Beheshti Hospital.
Methods: This cross-sectional study was conducted on all patients who were injured during traffic incident (any motor vehicle), they were over 18 years old, had a driver's license and referred to Shahid Beheshti Hospital in the first half of 2017. Urine samples were taken and was tested for confirmation of abuse.
Results: During first 6 months of 1397, 220 inside city traffic accident drivers were referred to Shahid-Beheshti hospital of Babol. Result of drug abuse test in 140 traffic accident drivers (63.6%) was reported positive. In investigating prevalence of various drug types being used among 140 drivers which were positive based on laboratorial results, Morphine with 54 cases (38.6%) had the highest and Meta-amphetamine with 17 cases (12.1%) had the lowest prevalence.
Conclusion: On the basis of results of current study, prevalence of drug abuse among urban traffic accident drivers was more than other studies and this issue needs more investigation in this field.
Keywords: Driving, Traffic crashes, Substance Abuse, opioid

INTRODUCTION

Traffic accidents are among the biggest public health problems in the world. According to statistics from WHO, Iran has first place in the incidence of traffic accidents[1]. In Iran rate of traffic accidents have increased 10 % and mortality of traffic accidents is 15 times more than developed countries[2]. Main causes of accidents include human, vehicle, road and environment and human has the most significant role[3]. According to the recorded statistics in accidents and injuries, humanfactors plays 90 – 70% role in all accidents[4]. Driving career in our country is one the most exhausting jobs. Cold, warmth, lack of welfare facilities and rest, being away from family and sleepless are the major problems of compatriots. These problems have underlid a seriousrisk for addiction to drugs and alcohol. Any drug or substance that affects the central nervous system can lead to disruptions in driving. Alcohol has a major role in road accidents in the world[5]. Opioid drug usage, whether chronic or acute, is a risk factor for incidence of traffic accidents[6]. Alcoholics and drug users are seriously facing driving issues[7] and they are more endangered to incidence of these accidents than other people[8,9]. Aim of this study is to determine the association between alcohol and opium usage among drives with rate of traffic accidents referring to Shahid-Beheshti hospital of Babol in 2017. The results from this study could represent suitable approaches to decrease such accidents resulted by drug abuse.

[1]Assistant Professor, Forensic Medicine, ShahidBeheshti Hospital, Babol University of Medical Sciences, Babol, Iran.
[2]Babol University of Medical Sciences, Babol, Iran.
[3]Assistant Professor, Pathology, ShahidBeheshti Hospital, Babol University of Medical Sciences, Babol, Iran
Correspondence to Dr. Akram Hosseini, Email: khademmazi@gmail.com Phone +98 11 32192832, Cell: +98-9111230437

METHOD

In this analytic cross-sectional study all of urban traffic accident drivers referring to Shahid-Beheshti hospital of Babol in first half year of 2017 included into the study. Expired drivers because of accident, drives aged below 18 years, patients who were car passengers, dissatisfaction to company in the study were excluded from the study. After providing description, confidentiality of information and obtaining satisfaction to participate in the study, after completing relevant checklist, with direct observation of questioner urine samples were collected from patients.
Patients urine samples has been tested with immunoassay chromatography (ABON) method. After the sample and test panel had the same temperature with room, tape like part of cassette was put perpendicularly in patient's urine test for 15 seconds and then took out and put in the cassettra. After 5 minutes samples were read. The presence of bond in control area and lack of presence of bond in test area is considered as being positive.

This multiparameter panel proves existence of materials such as Amphetamine, Meta-amphetamine, Cocaine, Diethyl Morphine (Heroin), Crystal meth, Marijuana, Methadone, Morphine, Opium, Benzodiazepines and three-ring antidepressants, Tramadol in patient's urine. Age, sex, marriage status, education level, carrier, accident time, vehicle type and type of used drug were collected in form of a checklist. Data were analyzed using SPSS V.22. Chi-square tests has been used for qualitive factors. P value under 0.05 was considered meaningful.

RESULTS:

During first 6 months of 1397, 220 inside city traffic accident drivers were referred to Shahid-Beheshti hospital of Babol. Result of drug abuse test in 140 traffic accident drivers (63.6%) was reported positive. Mean, standard

deviation and median of drivers age were 30.55, 12.05 and 26, respectively in 18-75 years range. In investigating prevalence of various drug types being used among 140 drivers which were positive based on laboratorial results, Morphine with 54 cases (38.6%) had the highest and Meta-amphetamine with 17 cases (12.1%) had the lowest prevalence. In this study patients who were using legal dosage of Benzodiazepines, were included. 54 cases (38.6%) of traffic accident drivers, were using 2 or more than 2 types of drugs, because of that issue total number of prevalence is more than 100 percent. Of 54 cases of traffic accident drivers who were using 2 or more than two types of drugs, 39 cases (72.2%) were using 2 types of drugs and 15 cases (27.8%) were using 3 or 4 or 5 types of drugs simultaneously. Between traffic accident drivers who had positive drug abuse test, 92.9% were male and self-employed and association between these two variables were significant (p=0.004). Based on table 3, drug abuse of morphine and benzodiazepines were significantly more in age group" ≥ 51" years (p=0.02 and p= 0.002, respectively). But methadone was used more in "26-50" years age group significantly (p=0.04). 61.1% of traffic accident drivers with positive morphine test had education level of diploma that statistically reported significant (p=0.01).

Table 1. prevalence distribution and prevalence of drugs being used among 141 randomly selected drivers with positive test

Types of drugs	Prevalence	Prevalence percentages*
Morphine	54	38.6
Benzodiazepine	49	35
Methadone	48	34.3
Amphetamine	28	20.0
Marijuana	19	13.6
Meta-Amphetamine	17	12.1

Inclusion of prevalence percentages is more than 100 %.

Table 2: comparing basic variables among traffic accident drivers with positive and negative drugs abuse test

Variables	Total (%)	Negative test result (%)	Positive test result (%)	P-value
Age group (year)				
25 ≥	108 (49.1)	42 (52.5)	66 (47.1)	0.41
26-50	94 (42.7)	34 (42.5)	60 (42.9)	
51 ≤	18 (8.2)	4 (5.0)	14 (10.0)	
Gender				
Male	194 (88.2)	64 (80.0)	130 (92.9)	0.004
Female	26 (11.8)	16 (20.5)	10 (7.1)	
Marriage status				
Single	118 (53.6)	43 (53.8)	75 (53.6)	0.98
Married	102 (46.4)	37 (46.2)	65 (46.4)	
Education level				
Under diploma	72 (32.7)	26 (32.5)	46 (32.9)	0.056
Diploma	110 (50.0)	34 (42.5)	76 (54.3)	
Higher than diploma	38 (17.3)	20 (25.0)	18 (12.9)	
Job				
Self-employed	176 (80.0)	55 (68.8)	121 (68.8)	0.004
Employee	21 (9.5)	10 (12.5)	11 (7.9)	
Homemaker	23 (10.5)	15 (18.8)	8 (5.7)	
Accident time				
Before noon	83 (37.7)	26 (32.5)	57 (40.7)	0.22
Afternoon	137 (62.3)	54 (67.5)	83 (59.3)	
Vehicle type				
Motorbike	105 (47.7)	32 (40.0)	73 (52.1)	
Automobile	107 (48.6)	45 (56.3)	62 (44.3)	
Bicycle	8 (3.6)	3 (3.8)	5 (3.6)	

Table 3. comparing type of drugs abused in different age groups

Variables	≤ 25 years	26- 50 years	≥ 51 years	P value
Morphine	27* (25.0)	18 (19.1)	9 (50.0)	0.02
Benzodiazepine	15 (13.9)	25 (26.6)	9 (50.0)	0.002
Methadone	17 (15.7)	24 (25.5)	7 (14.6)	0.04
Amphetamine	16 (14.8)	11 (11.7)	1 (5.6)	0.55
Meta- amphetamine	9 (52.9)	7 (41.2)	1 (5.9)	0.91
Marijuana	10 (52.6)	9 (9.6)	-	0.57

*Total number of percentages is more than 100 % due to multiple type of drugs being in used in one person

Table 4. comparing type of drugs abused based on educational level of traffic accident drivers

Variables	Under diploma	Diploma	Higher than diploma	P value
Morphine	18 (33.3)	33 (61.1)	3 (5.6)	0.01
Benzodiazepine	20 (40.8)	20 (40.8)	9 (18.4)	0.29
Methadone	13 (27.1)	31 (64.6)	4 (8.3)	0.052
Amphetamine	6 (21.4)	20 (71.4)	2 (7.1)	0.055
Meta- amphetamine	4 (23.5)	10 (58.8)	3 (17.6)	0.70

Marijuana	7 (36.8)	10 (52.6)	2 (10.5)	0.81

DISCUSSION:

Most important finding of this study was positivity of drug abuse test results among more than half of urban traffic accident drivers referred to Shahid-Beheshti hospital of Babol. These results are very considerable. Notice that most of studies conducted in field of drug abuse were among heavy vehicle drivers and outside urban areas or accidents lead to death, so we can claim that this study is the first study in prevalence of drug abuse among urban traffic accident drivers in one of the hospitals in north of the country.

Sustained results were really far from expectations and it seems that all programs for preventing addiction need to focus on this field.Of course, the association between accidents and drug abuse is not the main purpose of research and no comments could be added in this field because this issue requires extensive investigation in large sample size.

Hammet and colleagues in 2017 investigated toxicology results in car and motorbike driver death in Scotland. They claimed that 57 % of drivers had positive drug abuse test results[10]. In 2014 a study by Rudisill and colleagues on the amount of drug usage on expired drivers in accidents has been done, prevalence of test positivity in this study was reported 49%[11]. In a study by Costa and colleagues in 2012, in an 18 years investigation it has been reported that 47.1 % of drivers who had an accident used opioids[12]. Li and colleagues in 2013 also expressed that prevalence of drug abuse among drivers who had fatal crashes was 31.9%[13]. Zhuo and colleagues in 2011 reported that drugs test results in 10.5 % of drivers were positive and prevalence of psychotropic substances usage in drivers involved in traffic accidents in China was reported less than Europe[14]. Prevalence in mentioned studies was less than current study and it might be the result of screening and continuing education in these countries that has led to a decline in prevalence. Although there are no strong evidences about positive relationship between substance and drug usage and increasing risk of driving accidents but there are evidences that shows prevalence of psychotropic substances and amusing drugs are increasing among drivers and determining the effect of these materials on traffic accidents is one of the research priorities[15].

In this study 3 substances including morphine with 24.5 %, benzodiazepine within 22.3 % and methadone within 21.8% had the highest prevalence among traffic accident drivers. But prevalent substance reported in Soori and colleagues study included morphine within 71.3%[16]. This study is quiet similar to our study because opium is shown as morphine in laboratory results so in this case in both studies morphine was the most prevalent substance abused among drivers.

One of the strength points of this study was age pattern forprevalence of substance abuse among urban traffic accident drivers so that in each age group, one of substance abused more abundantly. Generally, morphine and benzodiazepine have their own fans in over 50 years age group, methadone between 26 and 50 years old and amphetamine and meta-amphetamine and marijuana in under 25 years age group had more prevalence.

By help of these findings it could be concluded that each age group tends to which drugs and on the basis of this pathology will be demonstrated and to prevent more from this incident, programming and proper educational plans will be made.

In other findings of this study in could be mentioned that in all cases of drug abuse of urban traffic accident drivers, diploma education level was more prevalent. The findings of this study could be the basis for future research so that much information can be obtained in this field.

CONCLUSION:

On the basis of results of current study, prevalence of drug abuse among urban traffic accident drivers was more than other studies and this issue needs more investigation in this field.

REFERENCES

1. Ali Almasi AH. Street Crash Situation in 1998. Journal of Kermanshah University of Medical Sciences. 2002;6(1):47.
2. Murray CJ, Lopez ADJTL. Alternative projections of mortality and disability by cause 1990–2020: Global Burden of Disease Study. 1997;349(9064):1498-504.
3. Yaghoobi H. The role of human factors in car accidents in Iran. 2000.
4. Wiegmann DA, Shappell SA. A human error approach to aviation accident analysis: The human factors analysis and classification system: Routledge; 2017.
5. Hunter C, Lokan R, Longo M, White J, White M. The prevalence and role of alcohol, cannabinoids, benzodiazepines and stimulants in non-fatal crashes1998.
6. Lyvers M, Yakimoff MJAB. Neuropsychological correlates of opioid dependence and withdrawal. 2003;28(3):605-11.
7. Soderstrom CA, Dischinger PC, Kerns TJ, Trifillis ALJAA, Prevention. Marijuana and other drug use among automobile and motorcycle drivers treated at a trauma center. 1995;27(1):131-5.
8. Brookhuis KA, de Waard D, Samyn NJP. Effects of MDMA (ecstasy), and multiple drugs use on (simulated) driving performance and traffic safety. 2004;173(3-4):440-5.
9. Perrine SA, Michaels MS, Ghoddoussi F, Hyde EM, Tancer ME, Galloway MPJNiBAIJDttD, et al. Cardiac effects of MDMA on the metabolic profile determined with 1H-magnetic resonance spectroscopy in the rat. 2009;22(4):419-25.
10. Hamnett HJ, Ilett M, Izzati F, Smith SS, Watson KHJFsi. Toxicological findings in driver and motorcyclist fatalities in Scotland 2012–2015. 2017;274:22-6.
11. Rudisill TM, Zhao S, Abate MA, Coben JH, Zhu MJAA, Prevention. Trends in drug use among drivers killed in US traffic crashes, 1999–2010. 2014;70:178-87.
12. Costa N, Silva R, Mendonça MC, Real FC, Vieira DN, Teixeira HMJFsi. Prevalence of ethanol and illicit drugs in road traffic accidents in the centre of Portugal: An eighteen-year update. 2012;216(1-3):37-43.
13. Li G, Brady JE, Chen QJAA, Prevention. Drug use and fatal motor vehicle crashes: a case-control study. 2013;60:205.
14. Zhuo X, Cang Y, Yan H, Bu J, Shen BJAA, Prevention. The prevalence of drugs in motor vehicle accidents and traffic violations in Shanghai and neighboring cities. 2010;42(6):2179-84.
15. Mørland J, Beylich K, Bjørneboe A, Christophersen A, editors. Driving under the influence of drugs: an increasing problem. Proceedings of the 13th International Conference on Alcohol, Drugs and Traffic Safety, Adelaide; 1995.

16. Soori H, Ainy E, Mehmandar Mr. epidemiology of drug dependence among commercial drivers in Iran. 2