VIOLENT CAUSES OF DEATH AFTER ILLICIT DRUG ABUSE – A STATISTICAL STUDY

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ABSTRACT

Introduction: Illicit drugs include a variety of substances that affect the central nervous system, and abusing them highly increases the risks for engaging in potentially dangerous and life-threatening behaviors. Although violent behavior has different causes, it is well known that acute substance intake and abuse increase the risk of both interpersonal and self-directed violence. Material and methods: For the period 2011-2015 in the Department of Forensic medicine and deontology, Sofia, 4849 autopsies of deceased with full forensic analysis were performed, including the gathering of anamnesis and criminal data from relatives and the authorities of the investigation, overall external and internal examination of the body, and chemical analysis of biological materials. Results: The analysis showed that 188 were cases of violent death with confirmed presence of illicit drugs. Violent causes of death for the above mentioned period are presented mainly by suicide and accident, rarely cases of homicide. In addition, the chemical analysis of the biological materials collected during autopsy established in the highest percentage the metabolites of cocaine and marijuana, especially in the cases of reckless and risky driving. Conclusion: The role of illicit drugs extends far beyond overdose and disease, and plays a significant role in premature deaths, highly increasing the risk of accidents, homicide and suicide.

Key words: *Violent death, illicit drugs, addiction*

INTRODUCTION

Drug abuse and drug-related violence are among the greatest concerns in the world today. Psychoactive drugs are chemical substances that affect the function of the central nervous system, altering perception, mood or consciousness (1, 4, 9). They include a variety of substances such as depressants, stimulants, hallucinogens, inhalants, opioids and other new, so called ”designer” narcotics (3, 5, 13). It is well known that addiction is a brain disease that is indicated by compulsive drug-seeking behavior, and an addict may spend an exorbitant amount of time obsessing over how to obtain their drug of choice, using it, and recovering from the drug’s effects (2, 7, 8). Therefore, abusing with illicit drugs highly increases the risks for engaging in potentially dangerous and life-threatening behaviors (6, 10, 12).Although violent behavior has different causes, it is well known that acute substance intake and abuse increase the risk of both interpersonal and self-directed violence (11).

MATERIALS AND METHODS

For the period 2011-2015 in the Department of Forensic medicine and deontology, Sofia, 4849 autopsies of deceased with full forensic analysis were performed, including the gathering of anamnestic and criminal data from relatives and authorities of the investigation, overall external

and internal examination of the body, chemical analysis of biological materials (blood, urine, internal organ parts) for the presence of alcohol, illicit drugs and other psychotropic substances. In addition, a complex analysis was made of the distribution of the causes of death, associated with the use of narcotics and the typesand combinations of the abused drugs.

RESULTS

For the period 2011-2015 of all cases investigated in the Department of Forensic medicine and deontology, in 188 of them the chemical analysis showed the presence of illicit drugs.The analysis of the dataindicated that violent deaths occur as a result of the impact of various external factors - mechanical, physical, chemical and others. For the above mentioned period the violent causes of death include cases of falling from high places, different types of mechanical asphyxia, gunshot injuries, electrical trauma, thermal injuries, traffic accidents, blunt and sharp object injuries.

In 2011 in the Department 1025 autopsies were performed. The analysis of the data showed presence of psychoactive substances in 43 of the examined cases and we recorded the following violent causes of death: four cases of falling from heights - two cases after opioid use (in the first case, a combination of heroin and methadone, the second - of pure heroin) and two cases in individuals with history of prolong heroin drug abuse; two cases of hanging - one of which after combined intake of heroin and cocaine (speedball) and one after the use of Tegretol(Carbamazepine) in a longtime heroin drug addict; one case of death due to the action of electric current where the deceased was under the influence of methadone and marijuana;one case of a gunshot injury to the chest after cocaine intake and a case of drowning after diazepam intake in a deceased with a history of prolong abuse with psychoactive substances (figure 1).

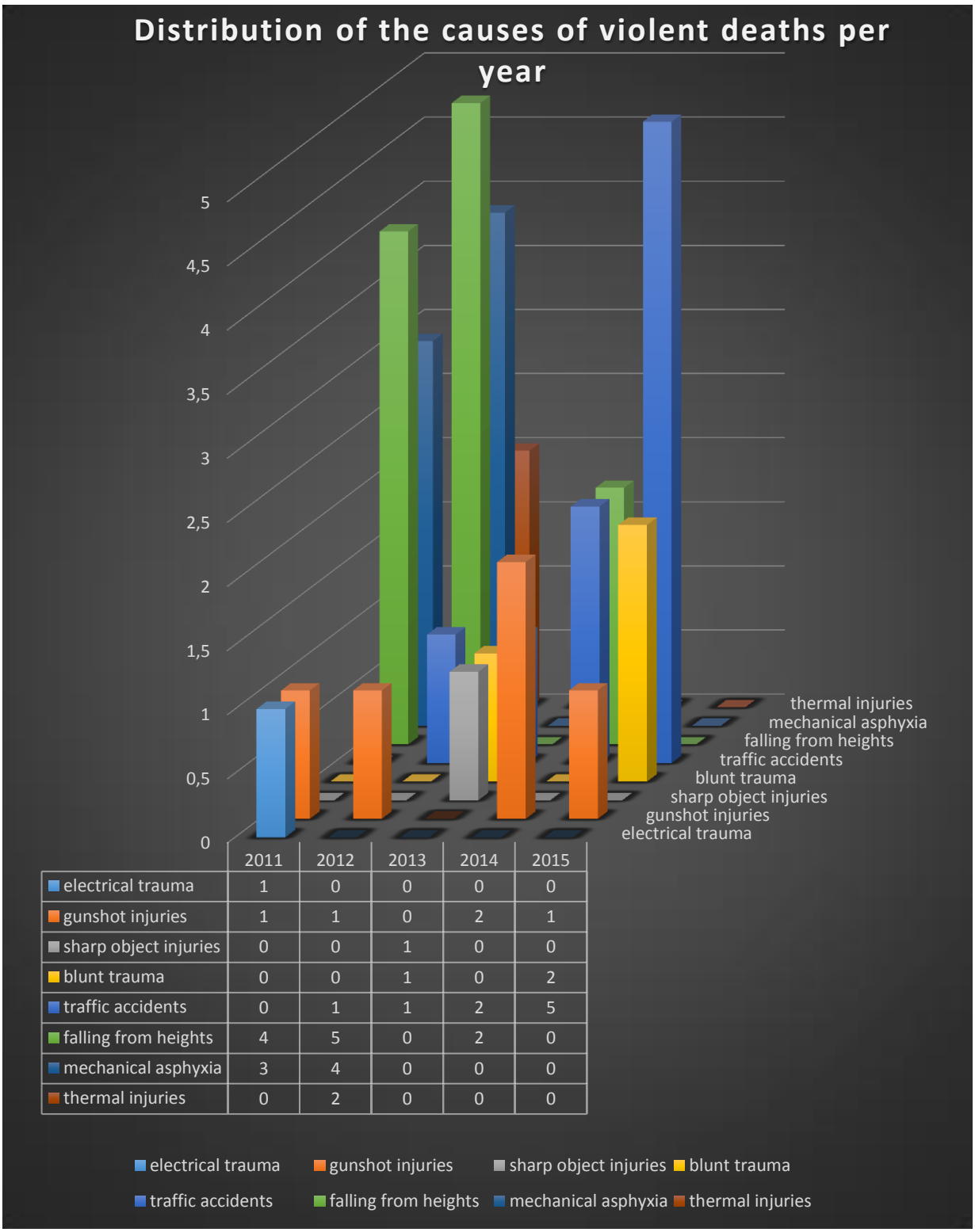
The following year (2012) 981 autopsies were performed, and in 36 of them the presence of illicit drugs was found. The violent cases of death associated with illicit drug abuse were as follows: five cases of falling from heights after the use of psychoactive substances, of which - three cases after using marijuana, one case –of Rohipnol (benzodiazepine), one case - of diazepam and alcohol in people with data for prolong drug abuse; Two cases of hanging - a case after receiving heroin, codeine, fentanyl, amphetamine and impurities, and the other after a dose of the so called "designer drugs" (4,4-dioctyldiphenylamine + lidocaine); one case of a gunshot injury to the hip with intensive bleeding from the femoral artery after taking cocaine – homicide; a case of drowning after taking methadone and alcohol; two cases of thermal injuries - one case of thermal shock due to combustion after the use of heroin; one case of hypothermia after taking methadone, THC and diazepam; one case of death due to "deadly bite" (bolus tot) after taking heroin and one case of a traffic accident after using marijuana (figure 1).

The observed violent deaths in 2013 include: one case of blunt trauma to the head after taking amphetamines and methamphetamines; one case of death due to a traffic accident after the use of marijuana and one case of acute blood loss - suicide with a sharp object after taking heroin (figure1).

In 2014 we observed the following violent causes of death:a case of hanging after taking heroin and marijuana; two cases of falling from heights - in the first after taking cocaine and the second after marijuana intake;two cases of gunshot injuries -one suicide after taking cocaine and alcohol and a homicide after marijuana intake; two cases of death due to traffic accidents after using marijuana and amphetamines and only marijuana (figure 1).

For 2015 the data is as follows:five cases of death due to traffic accidents – tree of which after the use of cocaine, one after amphetamine intake, and one after combined intake of amphetamine and heroin;two cases of blunt trauma - after amphetamine intake and after

combined usage of heroin, cocaine, marijuana, Phenobarbital and Diazepam and one case of death due to a gunshot injury after the use of cocaine (figure 1).



	2011	2012	2013	2014	2015
electrical trauma	1	0	0	0	0
gunshot injuries	1	1	0	2	1
sharp object injuries	0	0	1	0	0
blunt trauma	0	0	1	0	2
traffic accidents	0	1	1	2	5
falling from heights	4	5	0	2	0
mechanical asphyxia	3	4	0	0	0
thermal injuries	0	2	0	0	0

Figure 1.

DISCUSSION

Driving or working, under the influence of psychoactive substances, is especially dangerous. Behind only alcohol, marijuana is the drug most commonly involved in impaired driving. Its effects are associated with slowing down the brain functions (slows reaction time), impairing judgment of time and distance and decreasing coordination, while at the same time there is an increase in the risk-taking behaviors, making driving and marijuana a life-threatening combination (1, 4, 7). Drivers who have used cocaine or methamphetamine can be aggressive and reckless when driving. Certain kinds of sedatives, like benzodiazepines, can cause dizziness and drowsiness. All of these impairments can lead to vehicle crashes (3, 6, 13).

Studies have also proven that drugs may increase incidents of domestic violence, hostility, and aggression, leading to fatal injuries. Cocaine, benzodiazepines, and amphetamines may induce aggression and potentially hostile behavior, while other drugs like heroin and marijuana may lead to more hostility after the drug leaves the bloodstream during withdrawal.

In addition, drugs may exacerbate any underlying mental health disorders, causing wild mood swings or depressive episodes that may increase the risk for suicidal behavior as well (2,6).

For the whole period 50% of the death cases occurred as a result of a traffic accident or suicide committed by falling from high places. In addition, one fifth was due to suicide by mechanical asphyxia a result of hanging. Only 7,5% percent of the violent causes of death werehomicides by a gunshot injuries.The percentage is small for the other types of violent death (figure 2).

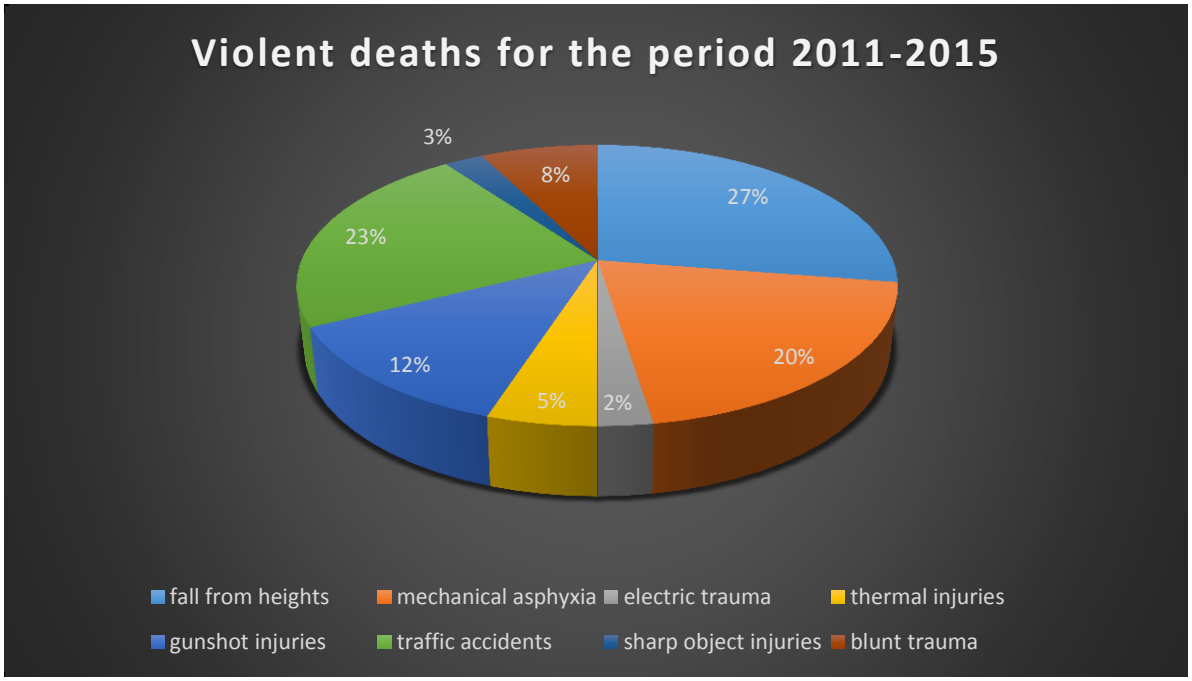


Figure 2

The cases where the cause of death is fall form a high place as a form of a suicide or an accident the death is associated in more than the half of the examined cadavers with the use of opioids, followed by marijuana intake (figure 3). The cases due to traffic accidents are related to the use of marijuana and stimulants in almost 90% of the accidents (figure 4). When death is a result of mechanical asphyxia almost in all cases it is after opioid intake (figure 5).Gunshot

injuries occur under the influence mainly of stimulants (figure 6). All victims of thermal injuries for the studied period are under the influence of opioids, as well as those with sharp object injuries. Stimulant were detected in the cases of blunt and electrical trauma. An overall distribution of the abused illicit drugs for the period 2011-2015 are presented on figure 7.

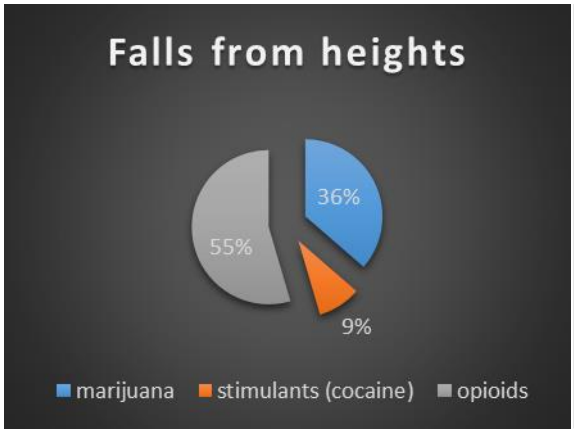


Figure 3

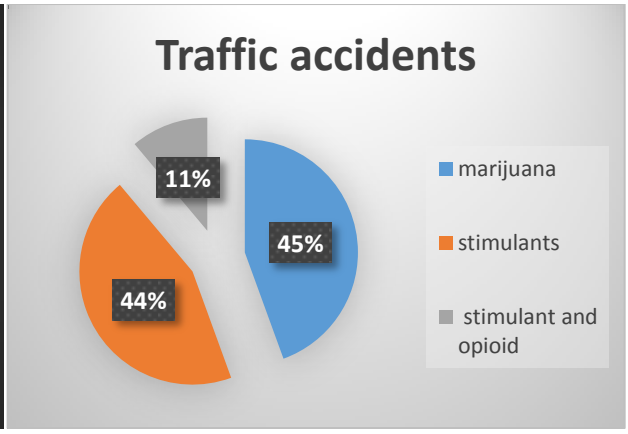
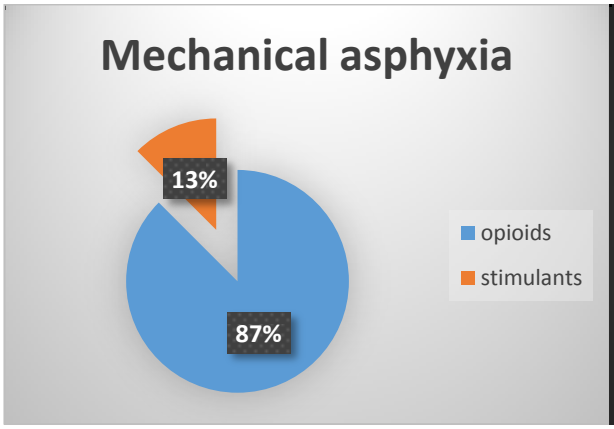


Figure 4



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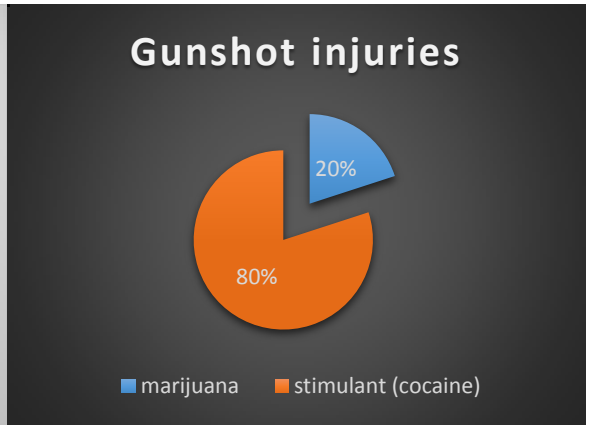

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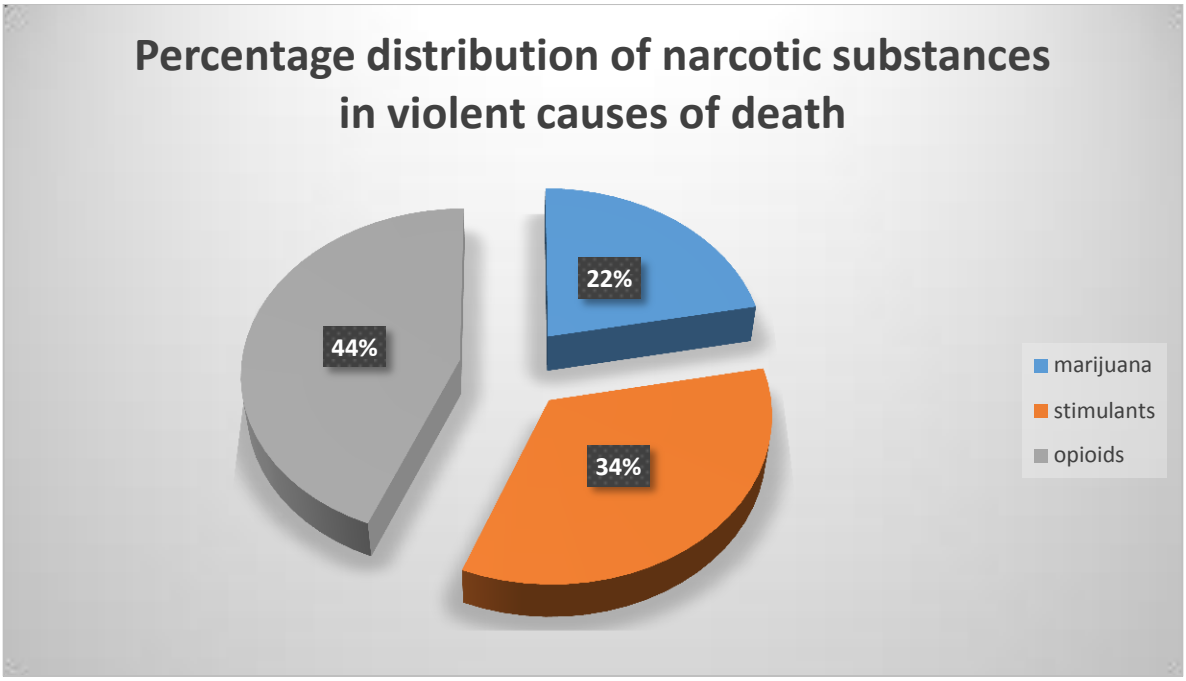

Figure 7

CONCLUSION

It is well known that drugs alter brain chemistry and impair cognitive and physical abilities alike. Links between alcohol abuse and violence have been recognized for years.In recent years, though, new varieties of violence have emerged, largely in relation to theabuse and distribution ofdifferent illicit drugs.Understandingthe causes, correlates, and consequences of drugs and violence is necessaryto develop effective public health and law enforcement strategies for prevention and control. Efforts to understand these relationships can contribute to a process for identifying ways to prevent theiroccurrence or to reduce their magnitude, severity, and their recent apparentintensification.

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