

Unusual case of suicide with pentobarbital

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Introduction

According to World Health Organization, the suicide death rate per population of 100000 in the Republic of Macedonia is 5.42 suicides (WHO, 2014). The most common suicide methods in our country are hanging, intoxication with corrosive substances and gunshot wounds. Rarest way of suicide is intoxication with drugs especially with barbiturates. We have only two cases of intoxication with barbiturates in the last five years.

Materials and methods

Case history: Female, twenty-five years was found dead lying on the bed in a hotel room, where she stayed. During the external examination of the body on the crime scene we found complete development of rigor mortis. On the bedside table, were found a box of Diazepam, gel tube of Lidocaine, a plastic bag with white powder contents and two suicide letters (one designated for the mother, and one for the police). The suicide letters for the police contained the whole process of the suicide, with mentioning of the drug types used. In the letter was described Pentobarbital used because causes coma and respiratory depression, Lidocaine used for decrease the unpleasant bitter taste and Metoclopramide used to prevent vomiting.

Postmortem blood and urine samples were collected for toxicological investigation. Toxicological qualitative analysis of blood using gas chromatography mass spectrometry (GC-MS) was performed. Determination of ethanol was performed using headspace gas chromatography.

Quantification of urine samples was performed with fluorescence polarization immunoassay (FPIA, AxSym system analyser– Abbott, USA).

Results

Autopsy findings

Postmortem lividity was developed, distributed on the dorsal portion of the body and disappeared on blunt pressure. Medico-legal autopsy revealed no external changes. No findings of natural disease were observed. During the internal examination, we observed non-specific signs of asphyxia. The brain was slightly oedematous. The lungs were congested and oedematous, with subserous petechial hemorrhages.

Toxicology findings

GC-MS toxicological analysis confirmed the presence of Pentobarbital, Diazepam, Lidocain-M-(desethyl) and Metoclopramide. No ethanol was detected in the samples. FPIA results from the urine samples indicated a level of pentobarbital (more than 2000 ng/ml) and 498 ng/ml of diazepam. According to urine cut-off levels for reporting positive blood level or limit of quantitation (CLR,2016), both urine pentobarbital and diazepam are over the cut off. No other drugs were found in the blood and urine of the victim.

Psychoautopsy

The suicide letter to her mother contained the reason of the suicide explaining the lack of reason and motivation for life and fatigue, mentioning unsuccessful treatment at

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physiologist. In the letter to her mother she stated that she was tired from being depressed all the time and that she had had nothing to live for, because she had no intention to work, get married or have a child. She had one previous suicide attempt with barbiturates and benzodiazepines.

Discussion

Suicide is an act or an instance of taking one's own life voluntarily and intentionally. Suicide is a behavior that differs from one person to another and from one time to another and has different motivations and anticipated gains. There are differences in the suicide method used in different countries. Three methods – hanging, pesticide poisoning and firearm are dominated. Jumping from a height and other methods of poisoning (i.e. mainly poisoning by drugs) occasionally appears as important alternative methods. The suicide method with poisoning is more popular in women than in men. In general, underlying suicide patterns tell us more about the availability and acceptability of suicide methods than about other disparities (Ajdacic-Gross et al., 2008). Factors that affect the risk of suicide include genetic vulnerability and psychiatric, psychological, familial, social, and cultural factors. The effects of media are also important; the spread of information about suicide methods affects the choices that people make when attempting to kill themselves. In this case during forensics analyses and psychoautopsy of the suicide letters we concluded depressed mood, lack of interest in pleasure, feelings of worthlessness, guilt, suicide statements and attempts all point out to major depressive disorder. Detailed description of suicide, the information of drug effects used direct on preparation process and internet investigation, which suggest awareness of the consequences.

The suicide letter mentioned alleged ingestion of Pentobarbital, Diazepam, Lidocaine and Reglan. The toxicology department of our institute confirmed the presence of these compounds in the blood and urine of the victim. Pentobarbital is a short-acting barbiturate that acts like a non-selective central nervous system depressant, and is primarily used as sedative hypnotic, as an anticonvulsant in sub hypnotic doses, medically induced coma and euthanasia in veterinary medicine (Charney et al., 2006; Greenblatt et al., 1979). In cases of intoxications, suppression of the central nervous system, hypotension, hypothermia, coordination disorders, respiratory failure and coma are the major clinical symptoms (Fell et al., 1968). Diazepam is a derivative of benzodiazepine that is widely prescribed as an anti-anxiety agent. Diazepam is sometimes used with other medications to treat seizures. When barbiturates are combined with other central nervous system (CNS) depressants, such as alcohol, opiates, or benzodiazepines, overdose is even more dangerous due to additive depressant effects on the CNS and respiratory system (Mactier et al., 2014). The clinical effects of barbiturates and benzo-

diazepines are similar and result as sequelae to hyperpolarizing the neuron, there are subtle differences in terms of receptor binding. Barbiturates increase the duration of Cl ion channel opening at the gamma-aminobutyric acid (GABA) receptor, which, in turn, increases the efficacy of GABA. Benzodiazepines, on the other hand, increase the frequency of Cl ion channel openings at the GABA receptor, which, in turn, increases the potency of GABA (Sharma and Hoffman, 2011).

Conclusion

Suicides with intoxication with these types of drugs are rare because of the unavailability of drugs, because they are prescription drugs, or are intended for clinical practice only. This case, suggest on detailed planned and determination to end her life. The combination of Pentobarbital, Diazepam, antiemetic drugs and the content of the suicide letter stating when, and how she will die, suggest that the victim was familiar with drug effects and knew where to get them. We should point that among all classical forensic methods, we include psychoautopsy as a good method which helps us to finalize all investigation and make scientific based conclusions for motivation and way of taking her own life.

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