

Drugs of abuse identified in the National Institute of Legal Medicine Mina Minovici Bucharest 2010

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Abstract: In the last few years in Romania a modern system of drug detection has been developed in the legal medicine system, increasing the detection rate and the sensitivity of DRD detection. In this short report we will present a general profile of drug abuse in Bucharest in 2010. The study was conducted in 2010 when a total number of 208 toxicology tests were conducted in the National Institute of Legal Medicine, 105 on cadavers and 103 on living persons. As main results, in living the most frequently identified drugs of abuse were THC and opiates whilst in cadavers opiates were the most frequent, followed by benzodiazepines. Conclusions. Opiate consumption has a tendency to decrease compared with 2009. Legal highs seems to shift the pattern of drug consumption in Bucharest and surrounding areas, but a definite results can only be obtained using test results from 2011.

Key Words: toxicology survey, drug related deaths, MDPPP, opiates related death

From 2006 to 2010 Romania had two Phare projects in the field of forensic toxicology under the co-ordination of Prof. Herbert Kaefenstein from the Institute of Legal Medicine University Hospital of Cologne and his experts teams: RO 04/IB/JH-11 TL “Strengthening the Institutional Capacity of the Romanian Agencies in the Field of Drug Demand Reduction” and RO 2006/IB/OT-04 TL “Supporting the national legal medicine network of drug of abuse and metabolites analyze laboratories”. These projects created modern toxicological facilities in 3 main cities of Romania (Bucharest, Iasi and Timisoara) by modernization of older structures, equipment endowment and import of best practice and methods from Germany. Thus an European standard was set once again for the Forensic Toxicology and Legal Medicine in Romania.

In this short report we will present a general profile of drug abuse in Bucharest in 2010.

Material and methods

In 2010 a total number of 208 toxicology tests were conducted in the National Institute of Legal Medicine. Screening tests were conducted using High Performance Liquid Chromatography.

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HPLC working methods came from Prof. Fritz Pragst (acidic, basic extraction and with protein precipitation using diclormethan) and Prof. Ludwig von Meyer (barbiturates, benzodiazepines, tricyclic antidepressants neutral environment extraction with clorbuthan or diclormethan).

Gass-Chromatography – Mass Spectrometry methods initially consisted in:

1. Blood. For Canabinoides: solid-phase extraction (SPE), followed by derivatisation and metilation. Opiates and cocaine: SPE, followed by derivatisation with trifluoroacetic acid and hexafluoroisopropanole (TFA+HFIP) or pentafluoropropionic anhydride and pentafluoropropanole (PFPA+PFPOH). Amphetamines: liquid-liquid extraction and derivatization (MBTFA) . Current methods consists from SPE derivatisation with TFA+PFPOH for 9 basic drugs simultaneously: amphetamines, metamphetamines, MDA, MDMA, MDEA, benzoilecgonine, methadone, morphine, codeine.
2. Urine: liquid-liquid extraction, followed by derivatisation and acetilation.
3. Stomach content: acidic- basic extraction with diclormethan /dietilether. Tissues: acidic-basic extraction with ethilacetat/diclormethan/isopropanol.

Results

Out of the 208 toxicological tests 105 were conducted on cadavers and 103 were conducted on living persons.

On living persons 41 tests were found to be positive for drugs of abuse and/or substances with neuropsychiatric effects and 62 tests were negative. Mean age was 29,25 years with limits between 15 and 73 years, and most patients were male (72 cases, 69.9%). 98 analyzes were conducted on urine and 63 on blood. TCH was identified in 17 cases (16.5%), opiates in 14 (13.6%), benzodiazepines in 5 cases, barbiturates in three, ketamine and carbamazepine in two, cocaine and MDPPP (in a syringe) in one.

On cadavers a total number of 105 cases were analyzed. 76.19 were males (80 cases) and 23.81% (25 cases were female), with a mean age of 30.88 years and limits between 16 and 78 years. 42 cases (40%) had negative results whilst 63 had positive results. Most cases (48 patients, representing 45.71%) had opiates intoxications (mostly morphine but also heroin, metadone, codeine, tramadol, etc); 27 cases with opiates intoxication had at least another, non-opioid association, whilst 21 cases were pure opioid intoxication. Other substances identified were – benzodiazepines (24 cases, 22.85%), barbiturates and carbamazepine with 12 cases each (11.4%), antipsychotic medication in four cases, ketamine in three, cocaine in two, TCH, MDPPP-MPP (in an envelope), MDE, MDMA in one (See Figure 1).

Discussions

Drug addiction cases in the last few years became more numerous in Romania, with an increasing number of cases being declared each year[1, 2], the most frequent being by far TCH and opiates[3]. Between 2005 and 2009 the mean age in drug related deaths was 24.8 years, but the age had a tendency to increase, reducing the gap compared to Western Europe; in 2010 the trend was kept, the mean age in drug related deaths being almost 31 years (the value is higher however as we took into consideration all deaths with associated positive toxicological screening).

The number of cases are similar with the ones obtained in the last years; for example for example in 2009 in living persons out toxicology lab gave 35 positive results for drugs of abuse (17 opiates, 7 THC, 3 ketamine, 8 – others); in 2010 we find a decrease in the number of opiates cases (14 cases) and a marked increase in the number of TCH cases (17). A phenomenon becoming increasingly more prevalent in the last 1-2 years is a shift from “classical drugs” to “legal highs”[2, 4-10].

Due to technical and methodological problems in toxicological detection of these substances, forensic toxicology is not yet able to provide a correct representation of the legal highs prevalence and involvement in DRDs.

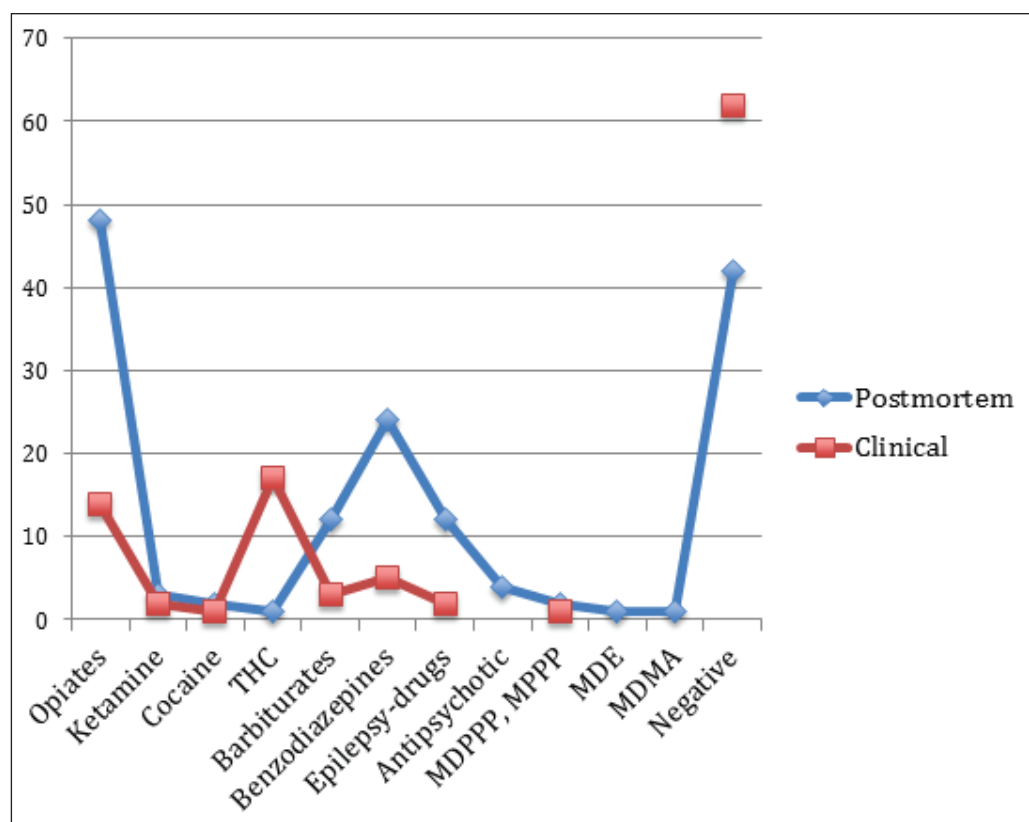


Figure 1. Drugs of abuse in Bucharest and surrounding areas in 2010

However, in almost all cases in which legal highs were considered to be involved in thanatogenesis (as suggested by clinical investigation or crime scene investigation), we were able to find classical high-risk drugs like opiates, ketamine, etc. The main causes for this phenomenon, after Gorun et al are: (1) sprinkling drugs bought from “legal shops” with high risk drugs, or (2) a concomitant or successive use of

legal highs and classical drugs of abuse[8].

Most DRDs were associated with opiates use whilst in clinical practice we identified a shift towards THC (not taking into account the use of legal highs in which our toxicological screening was only capable of identifying classical drugs). This shift can be caused by either a relative increase in the use of THC or a decrease in opiates-related substances availability. A definite answer will be given by the results obtained in the following years as this phenomenon is just starting to emerge.

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