Recreational drugs in clinical toxicology: new challenges in the everyday's routine

[1]Ágnes Lakatos, [1]Anikó Lajtai, [2]Zoltán Porpáczy, [2] Mátyás Mayer, [1]Gábor L. Kovács
[1] Department of Laboratory Medicine; [2] Department of Forensic Medicine, University of Pécs, Hungary

BACKGROUND:

In the routine praxis of clinical laboratory toxicology, biological samples (mostly urine) of the poisoned patient are used to confirm poisoning and determine the nature and quantity of the consumed dangerous substances. The anamnesis in this field is usually inefficient. The patients are often unconscious or deny to give any information; or they do not even know what was the substance they used for suicide attempt or abuse. The palette of most often used poisonous agents is changing from time to time. This is true on one hand for the medical drugs. However, on the field of recreational drugs new substances appear literally weekly resulting in continuous challenge for the clinical toxicologists. The lack of experience with designer drugs often force the user to run into serious or even life threatening conditions and need emergency care. Neither the widespread immunological rapid tests, nor the clinical experience can give sufficient diagnosis in these cases.

METHODS:

Shimadzu Prominence TOX.I.S. HPLC-DAD for routine screening and identification of drugs

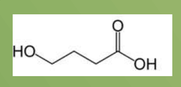
Autoflex II TOF/TOF (Bruker Daltonics, Bremen, Germany) to validate the „reference materials"

Patients: from the Emergency and Intensive Care Units of the Medical School of the University
Samples: Urine

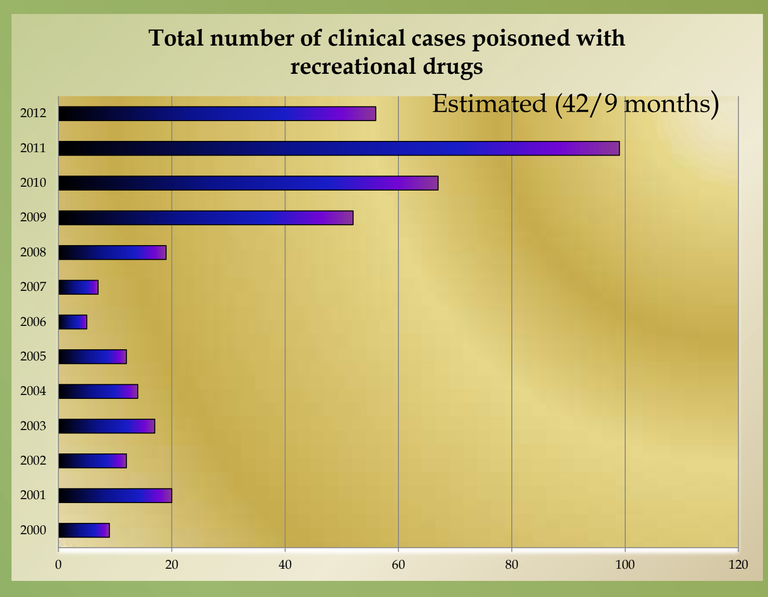
RESULTS:

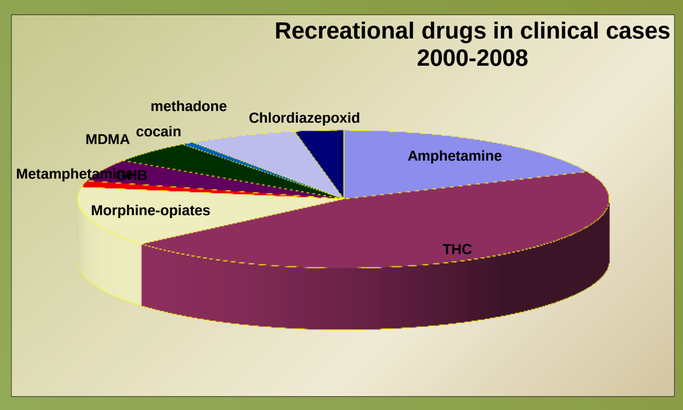
Appearence of new recreational drugs (in our laboratory practice):

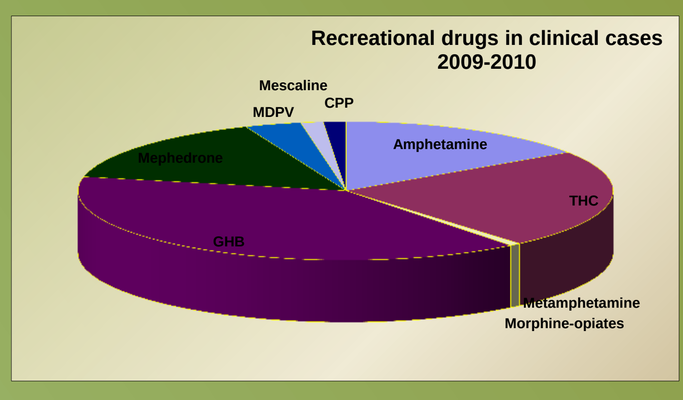
2008 October: GHB (GC)



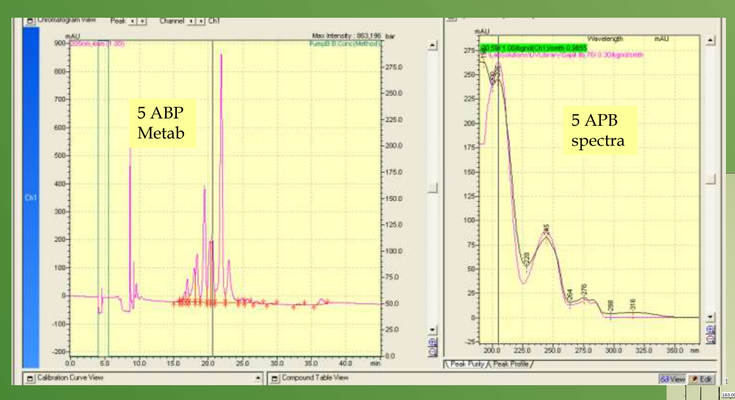
2010 January: Mephedrone
2010 September: MDPV
2011 February: Flephedrone
2011 May: 4-MEC
2011 October: 4-FA, Methoxethamine, Benzo-fury
2012 January: Pentedrone
2012 April: Tryptamines

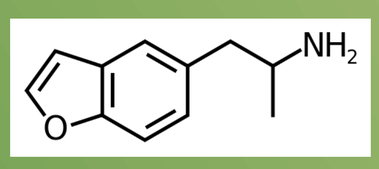




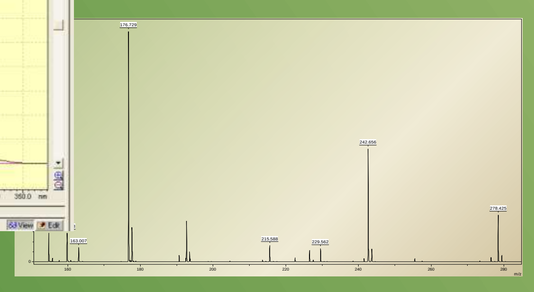


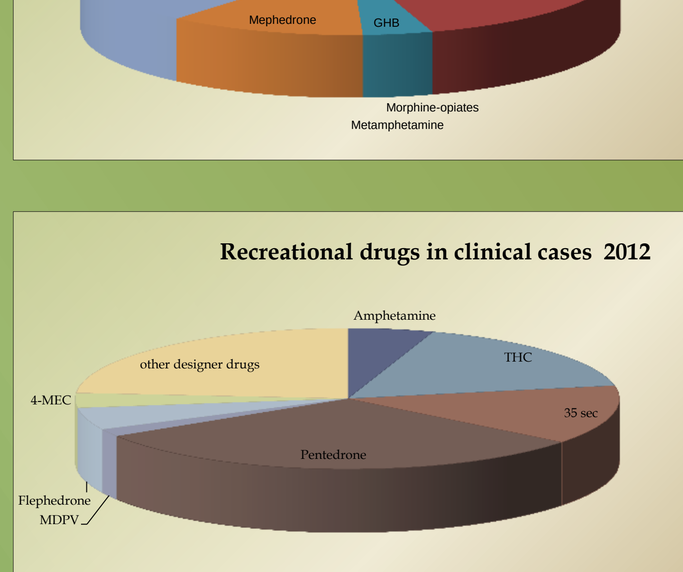
Benzo-fury (5APB) in urine chromatogram



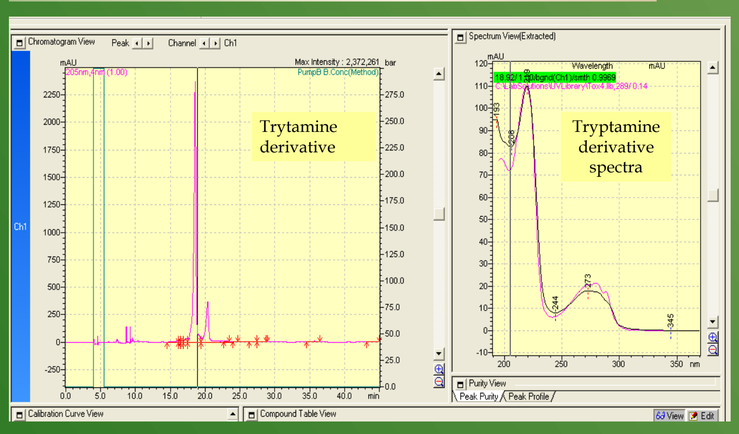


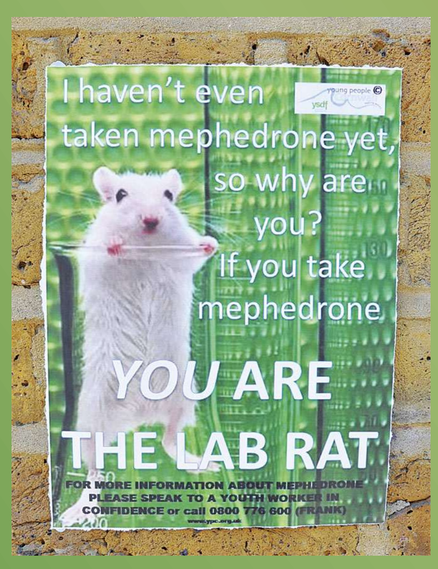
Reference MS spectra
MW: 175



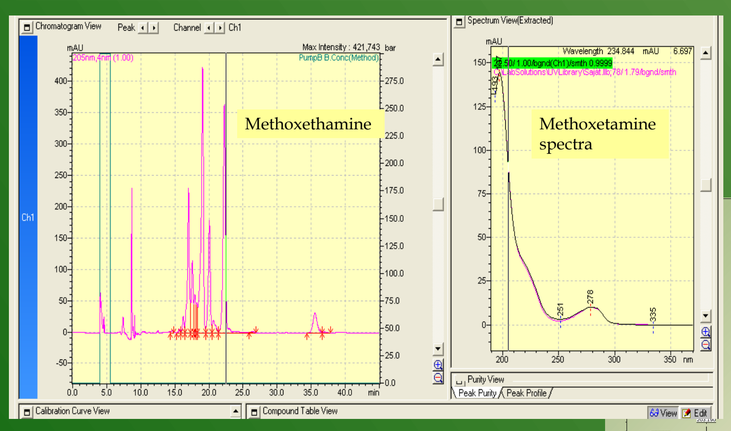


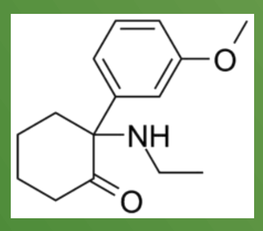
Tryptamine derivative in urine chromatogram



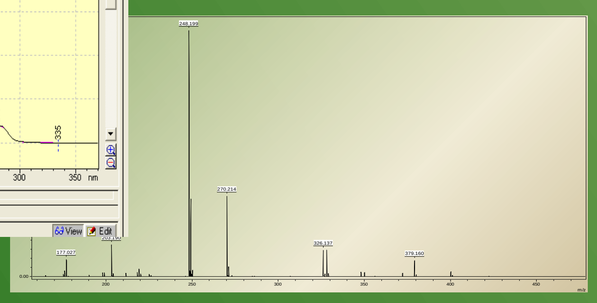


Methoxetamine in urine chromatogram





Reference MS spectra
MW: 247



CONCLUSIONS:

We analyzed mephedrone, flephedrone, 4-MEC, MDPV, benzo-fury (5APB), 4FA, pentedrone and methoxetamine, tryptamines in the last 3 years in increasing number of clinical cases (about 250). The HPLC method is convenient for the detection and identification of a broad spectrum of drugs, either well known or new.

Supported by: SROP-4.2.1/B-10/2 2010-0002