Synthetic cathinones in Belgium: 2 case reports with different issues observed in the emergency room

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Background

Case 1: 31-year-old drug addict
Day 0: injection of unknown compound
Tachycardia, Palpitations, Mydriasis, Dyspnea, Dizziness, Headache, Nausea
Left against medical advice
Day +1: agressiveness, agitation
Day +1 month: sleeping disorders, hallucinations, anxiety
⇨ 21st detoxification cure

Case 2: 27-year-old man with no previous history
Day 0: wandered in the night
Confessed the snorting of n-ethylpentedrone
Intensive Care Unit
Coma – intubation, dialysis
D+3: extubation, stop dialysis
D+5: symptoms resolution - discharge from ICU

Method

Liquid Liquid Extraction

UHPLC-TOF-MS (Sciex)
Eksigent LC 100 XL + TripleTOF 4600
Column: Kinetex 2.6 C18, 100 Å, 50 x 3.00 mm (Phenomenex)
Mobile Phase A: 10 mM NH₄ formate
Mobile Phase B: ACN/MeOH (50/50)
Gradient mode: 15.5 min runtime

HPLC-DAD (Waters)
Alliance 2695 + PDA 2996
Column: Symmetry C8, 5 μm, 250 X 4.6 mm (Waters)
Mobile Phase A: 43.5 mM PO, buffer pH 3.8
Mobile Phase B: Acetonitrile
Gradient mode, 45 min runtime

Results and discussion

Case 1: α-pyrrolidinohexiophenone (α-PHP)

• Detected during first & second admission only
• Still waiting for the reference standard since August
  ⇒ No quantification
• + cocaine, cannabis, opiates (heroin, methadone)
  benzodiazepines (clonazepam, diazepam, bromazepam)
  ⇒ Interpretation?

Stability of cathinones in biological samples [3-4]
• Tertiary amines more stable than secondary
• Depending on the temperature, some cathinones are highly unstable

Case 2: α-ethylpentedrone
(α-ethylaminopentiophenone - α-EAPP)

2234 ng/ml
Admission
+17 hours

2804 ng/ml

Nordazepam (1299 ng/ml) and oxazepam (94 ng/ml)
Subcontracting: time to transfer de samples

Literature

<table>
<thead>
<tr>
<th>Ref</th>
<th>Lethal concentration</th>
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<tbody>
<tr>
<td>1</td>
<td>3100 ng/ml</td>
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<tr>
<td>2</td>
<td>932 ng/ml</td>
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Conclusion

Cathinones are presents on the Belgian illicit drug market, with various routes of administration and clinical consequences.

References

2. Pieprzyka E. et al. J Anal Toxicol 2021;00,1-7