Poster

[P26-10] P26-10: Assay of toxicants

Chair: Steven How-Yan Wong, USA

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[P26-10-8] Extensive toxicological analysis versus routine drugs-of-abuse screening in the acute patient setting

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Keywords: drugs-of-abuse (DOA), point-of-care test (POCT), extensive toxicological analysis (ETA)

Background

For diagnosis and treatment in the acute setting, it is important to know if the clinical status of potentially intoxicated patients might be explained by the effects of drugs-of-abuse (DOA) or other drugs.
A DOA point-of-care test (POCT) in urine provides results within a few minutes, whereas traditional extensive toxicological analysis (ETA) takes a couple of hours. However, a DOA-POCT only covers a limited number of drugs.
A new LC-MS^N drug screener covers a broad range of drugs and provides results within 15 minutes.
The aim of this study was to determine whether ETA, with LC-MS^N and GC (alcohols and GHB), identifies more positive drugs compared to a DOA-POCT.

Methods

Potentially intoxicated patients admitted to the Emergency Department of the OLVG Hospital in whom a DOA-POCT was performed were included (June - September 2016).
DOA-POCTs were performed using the qualitative immunoassay Triage® TOX Drug Screen (including amphetamines, methamphetamines, barbiturates, benzodiazepines, cocaine, methadone, opioids, phencyclidine, cannabis and tricyclic antidepressants) in urine.
ETA was performed using 1) a state-of-the art qualitative LC-MS^N method (Toxtyper®; Toxtyper® library, including ±900 drugs) in serum 2) two quantitative GC methods for alcohols and GHB respectively in serum and urine.

Results

117 patients were included.
95 (81%) DOA-POCTs were found to be positive for at least one DOA. ETA identified another 178 positive drugs in 82 different patients (=86%).
22 (19%) DOA-POCTs were found to be negative for all DOAs. The ETA identified 20 positive drugs in 12 different patients (=55%).
ETA identified 198 more positive drugs (DOA (n=19), other drugs (n=100), GHB (n=20), ethanol (n=46), acetone (n=13)) in 94 different patients (80,3%).
Additional identified DOAs were ephedrine (n=1), ethylglucuronide (n=8), methylphenidate (n=4), ketamine (n=3) and benzodioxazolybutanamin (n=3). Other identified drugs were analgesics (n=19), cardiovascular agents (n=13), antipsychotics (n=12), antidepressants (n=7), anticonvulsants (n=7) and others (n=42).

Conclusions

ETA, with LC-MS^N and GC, identified more positive drugs in 80% of all patients, compared to the immunoassay DOA-POCT. Therefore, ETA is superior to DOA-POCT and may better contribute to the right

diagnosis, i.e. intoxication and treatment of patients in the acute setting.