Low sensitivity of toxicological analysis in daily practice of acute poisonings

An endless rupture in spite of modern technology

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The aim of this retrospective study performed in a medical polyvalent intensive care unit (MPICU) was to assess the added value of TA performed in three University Toxicological Laboratories (Tox Lab) in the routine management of drug poisonings.
Materials and methods

• Patients were admitted for poisoning in our Intensive Care Unit.
• Blood/urine specimens were collected on admission
• Sent to the local (ToxLab1 = Necker),
• The ToxLab on duty (ToxLab2 = Lariboisière),
• and our correspond Forensic lab (ToxLab3 = Garches).

The patients were included in one of the three groups based on the supposed ingested drugs (SID) and the results of TA:

SID+, TA+
SID+, TA -
SID-, TA.
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Results (1/2)

• There were 224 occurrences of 90 Supposed Ingested Drugs (SID) in 70 patients.

• A SID+, TA+ was observed in only 33% of the 224 occurrences;

• A blood concentration of the toxic substance can be measured in 29%
• The TI (ratio of the supposed ingested dose to the daily dose recommended dose) was >1 in 45% of the drug poisoning.
• The TA was of interest either confirming or excluding a toxicant in only 15% of the occurrences
• Potentially toxic concentrations were found in 89% of the occurrences in whom a concentration can be measured.
• The drug was excluded in 11% of the occurrences in whom a concentration can be measured.
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Discussion conclusion.

• Gathering facilities provided by three University ToxLabs resulted in a low added value of TA in drug poisonings occurring in an adult population.

• TA is of limited value for the definitive diagnosis of the majority of drug poisonings and not clarifying drug-drug interaction.

• Presently, TA cannot be assumed as the « gold standard » for acute poisonings routinely admitted in ICU.

• TA is efficient only for limited toxicants, including paracetamol