

Paracetamol Overdose

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| HOSP # | | WARD | C15 Casualties |
| Consultant | | DOB/AGE | 33 year Female |

Abnormal result

Paracetamol 25ug/ml (163 umol/L) Serum osmolarity 310mmol/L

Presenting Complaints

Brought to casualties with stupor from Mitchells Plein Hospital.

History

33 y female presented with stupor after ingestion of an unknown amount of pills. Empty container of Amitriptyline and Paracetamol was found with her.

Examination

Non-specific neurologic signs, but delirium present. Patient did have an episode of vomiting. No pathological signs on abdominal examination.

Laboratory Investigations

12/08/2018: Na 156 mmol/L (H) Urea 4.2mmol/L
Tot. Bili 4 umol/L K 1.9 mmol/L (L) Creat 88
umol/L ALT 82 U/L Cl 97.9 mmol/L (L) Gluc 3.52
mmol/L AST 238 U/L Ammonia 35 umol/L
Bicarb 16.6 mmol/L (L) Osmol 310 mmol/L (H) Osmolar
gap: -10 mM Anion Gap: 47 mmol/L

Marked elevation of hepatocellular enzymes, ductal enzymes within normal range. Within the course of three days the patient developed Klebsiella Pneumoniae on intubation in ICU with DIC and marked renal failure (Creat 506, Urea 26.8) and demised in ICU 3 days after admission, although liver enzymes were not markedly more deranged as initial presentation.

Paracetamol: The Paracetamol level was never repeated after admission. Doing an in-house experiment with calibrator and spiking the calibrator samples with N-acetylcysteine correlating with therapeutic plasma levels, I demonstrated that our method on the Roche analyzer, with the enzymatic assay, causes a clinically significant negative interference in the measured paracetamol.

The enzymatic assay principle:

arylacylamidase hydrolysis

o-cresal + periodate catalyst

Acetaminophen → p-aminophenol + acetate → indophenol
(measured @600nm)

Other Investigations

Tricyclic antidepressant levels 58 ug/L ([TCA] in overdose patients range from 29-1732ug/L, but has not been found to correlate to clinical outcome, unless plasma level is more than 1000ug/L).

Final Diagnosis

Klebsiella Sepsis (confirmed on blood culture 1 day after death) DIC with marked renal failure.

Take Home Messages

- Paracetamol reporting units must be confirmed, we generally use ug/ml, but it has created confusion previously, as nomograms used in South Africa generally use ug/ml.
- N-acetyl cysteine may cause negative interference with the measurement of paracetamol in the enzymatic assay. Sampling for Paracetamol levels should thus be done before an IV dose of NAC is given to eliminate this possible error. National guidelines with toxicology will likely be amended.