

INTERFERENCE OF N-ACETYLCYSTEINE IN PARACETAMOL MEASUREMENT AT GSH NHLS

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Background

Paracetamol (Acetaminophen; ACETA) is commonly measured enzymatically on automated analysers for determination of serum concentrations in presumed or confirmed overdose cases. N-acetylcysteine (NAC) is the mainstay treatment for ACETA overdose, thus these two analytes often occur together in these patients' serum.

Objective

The question at hand, is whether at therapeutic plasma concentrations of NAC, there is significant negative interference in the measurement of ACETA at Groote Schuur Hospital NHLS.

Methods

Two experiments were performed to assess the interference of NAC on the measurement of ACETA. NAC concentrations used in vitro were related to therapeutic NAC concentrations.

Results

In the first experiment, negative interference of 14 – 23 % was found when samples were spiked with 1000 ug/ml of NAC. In the second experiment, negative interference of 7 – 11 % was found at various NAC spiking concentrations, resembling NAC therapeutic serum levels.

Conclusions

Significant negative interference was found in the enzymatic measurement method of ACETA when samples are spiked with NAC. This study illustrates the importance of confirming the ACETA measurement method of each laboratory and that in-house studies per laboratory need to be done to determine whether NAC significantly interferes with the specific analyser.