

Determination of paraldehyde by gas chromatography in whole blood from children

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<http://hinari-gw.who.int/whalecomwww.ncbi.nlm.nih.gov/whalecom0/pubmed/15135115>
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Abstract:

A rapid, sensitive and selective gas chromatographic method with flame ionization detection was developed for the determination of paraldehyde in small blood samples taken from children. Whole blood samples (300 microl) collected in a 3 ml Wheaton glass sample vial were spiked with acetone (internal standard: 15 ng) followed by addition of concentrated hydrochloric acid. The mixture was heated in the sealed airtight sample vial in a water bath (96 Celsius; 5 min) to depolymerize paraldehyde to acetaldehyde. A 2 ml aliquot of the headspace was analyzed by gas chromatography with flame ionization detector using a stainless steel column (3 m x 4 mm i.d.) packed with 10% Carbowax 20 M/ 2% KOH on 80/100 Chromosorb WAW. Calibration curves were linear from 1.0-20 microg ($r^2 > 0.99$). The limit of detection was 1.5 microg/ml, while relative mean recoveries at 2 and 18 microg were 105.6 +/- 8.4 and 101.2 +/- 5.9%, respectively (n = 10 for each level). Intra- and inter-assay relative standard deviations at 2, 10 and 18 microg were <15%. There was no interference from other drugs concurrently used in children with severe malaria, such as anticonvulsants (diazepam, phenytoin, phenobarbitone), antipyretics/analgesics (paracetamol and salicylate), antibiotics (gentamicin, chloramphenicol, benzyl penicillin) and antimalarials (chloroquine, quinine, proguanil, cycloguanil, pyrimethamine and sulfadoxine). The method was successfully applied for pharmacokinetic studies of paraldehyde in children with convulsions associated with severe malaria