

High-performance liquid chromatographic determination of diazepam in plasma of children with severe malaria

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Abstract:

A sensitive, selective and reproducible reversed-phase HPLC method with ultraviolet detection was developed for the quantification of diazepam in small plasma samples from children with severe malaria. The method involves plasma deproteinization with acetonitrile, followed by liquid-liquid extraction with ethyl acetate-n-hexane. Diazepam was eluted at ambient temperatures from a reversed-phase C18 column with an acidic (pH 3.5) aqueous mobile phase (10 mM KH₂PO₄-acetonitrile, 69:31, v/v). Calibration curves in spiked plasma were linear from 10 to 200 ng ($r^2 \geq 0.99$). The limit of detection was 5.0 ng/ml, and relative recoveries at 25 and 180 ng were >87%. Intra- and inter-assay relative standard deviations were <15%. There was no interference from drugs commonly administered to children with severe malaria (phenobarbitone, phenytoin, chloroquine, quinine, sulfadoxine, pyrimethamine, halofantrine, cycloguanil, chlorcycloguanil, acetaminophen and salicylate). This method has been used for monitoring plasma diazepam concentrations in children with seizures associated with severe malaria.