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Short Communication

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Rapid Determination of Hydrochlorothiazide in Human Plasma by High Performance Liquid Chromatography-Tandem Mass Spectrometry

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SUMMARY. **This paper describes a rapid (2.0 min) and sensitive (LLOQ 5 ng/mL) analytical method for the quantitation of hydrochlorothiazide (HCTZ) in human plasma. The method is based on High-performance Liquid chromatography-tandem mass spectrometry (LC-MS/MS) using clortalidone as internal standard (I.S.). Sample preparation involved liquid-liquid extraction with methyl tert-butyl ether. The chromatographic separation was achieved on a monolitic C18 (50 x 4,6 mm) reversed-phase column and a mobile phase containing acetonitrile/water (80:20 v/v, add 5% isopropyl alcohol), in isocratic conditions. The target analytes were transferred into a triple quadrupole mass spectrometer equipped with an electrospray ionization source for mass detection. The ion transitions selected for MRM detection were: *m/z* 296.10 > 204.85 and 337.13 > 189.77 for HCTZ and I.S., respectively. The assay was linear in the concentration range of 5–400 ng/mL. The mean recovery for HCTZ was 80.46%. Intra- and inter-day precision (Relative Standard Desviation) were < 10.3 % and <11.7%, respectively and the accuracy (Relative Error) was in the range ± 4.54%, the accuracy was evaluated by the ratio between concentration found/nominal concentration. The method was successfully applied to a single oral dose pharmacokinetics study in 26 healthy human volunteers.**

KEY WORDS: Hydrochlorothiazide, LC-MS/MS, Pharmacokinetics.

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