

Clinical Trials and Therapeutic Drug Monitoring

August 22-24, 2016 Philadelphia, USA

Determination of glyceryl trinitrate and its two main metabolites in human plasma using a new sensitive gas chromatography method

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The aim of the present study was to determine the concentrations of nitroglycerin (glyceryl trinitrate, GTN, CAS 55-63-0) and its two main stable metabolites; 1,2-dinitroglycerin (1,2-glyceryl dinitrate, GDN, CAS 621-65-8) and 1,3-dinitroglycerin (1,3-GDN, CAS 623-87-0) in human plasma using a capillary gas chromatography method with an electron capture detection. Using the GC conditions, linear calibrations were obtained for 1,3-GDN from 0.14 to 3 ng/mL, for 1,2-GDN from 0.06 to 6 ng/mL, and for GTN from 0.01 to 0.3 ng/mL in plasma samples by the following calibration curve equations: $[y=0.1924x-0.0088 (r^2=0.999)]$, $[y=0.2273x+0.0164 (r^2=0.995)]$, $[y=17.434x-0.0751]$ for 1,3-GDN, 1,2-GDN, and GTN respectively. The calculated limits of quantification values for GTN, 1,2-GDN, and 1,3-GDN were 0.03 ng/mL, 0.2 ng/mL, and 0.15 ng/mL respectively. This method was verified with a bioequivalence study of an Iranian brand of oral sustained release nitroglycerin with an innovator formulation.

Biography

Mohammadreza Sattari has completed his PhD from the School of Medicine of Cardiff University in the UK. He is a Clinical Toxicologist, Professor and Director of a research team focusing on clinical trials and bioequivalence studies at the Faculty of Pharmacy and hospitals of Tabriz University of Medical Sciences. He has published more than 50 papers in reputed journals and serving as an Editorial Board Member of reputed.

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