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Pharmacokinetic Study of Triflusal in Human Plasma by High Performance Liquid Chromatography with Automated Column Switching System

Jeong-Sook Park°, Kyung-Mi Park, and Chong-Kook Kim
College of Pharmacy, Seoul National University, Seoul, Korea

To study the pharmacokinetics of triflusal, more reliable and sensitive analytical method of triflusal in plasma sample was developed. Analytical method of triflusal in human plasma was developed using semi-microbore HPLC equipped with automated column switching system. *p*-Toluic acid, which is structural analogue of triflusal, was used as an internal standard and 2 M HCl was employed as a stabilizer. The load phase and mobile phase were prepared using acetonitrile and 20 mM KH_2PO_4 with the volume ratios of 10:90 (pH 2.5) and 43:57 (pH 2.3), respectively. The signals were monitored by UV detector at 275 nm with flow-rate of load phase, 500 μl/min, and mobile phase, 100 μl/min, respectively. The retention time of triflusal and *p*-toluic acid was about 20.2 min and 16.4 min, respectively. The detection limit of triflusal in human plasma was 0.01 μg/ml and the limit of quantitative analysis was 0.05 μg/ml. The accuracy of the assay was from 97.76% to 116.51% while the intra-day and inter-day coefficient of variation of the same concentration range was less than 15%. This analytical method demonstrated excellent sensitivity, reproducibility, specificity, and speed using the plasma sample. The maximum plasma concentrations (Cmax), time of maximum plasma concentration (Tmax), and area under the curve of triflusal ($AUC_{0\rightarrow 4hr}$) were 4.03±1.5 μg/ml, 0.69±0.19 hr, and 3.32±0.94 μg·hr/ml, respectively. This method could be successfully applied to evaluate the bioavailability of triflusal in human subjects without time-consuming sample clean-up after oral administration of low dose.