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CLINICAL APPLICATION FOR DETERMINATION OF DARUNAVIR USING VERY LIMITED VOLUME OF PLASMA BY HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY WITH FLUORESCENCE DETECTION

Daisuke Nagano[1,2], Takuya Araki[1], Tomonori Nakamura[1,2] and Koujirou Yamamoto[1,2]

[1]Department of Clinical Pharmacology, Gunma University Graduate School of Medicine, 3-39-22 Showa-machi, Maebashi 371-8511, Japan

[2]Department of Pharmacy, Gunma University Hospital, 3-39-15 Showa-machi, Maebashi 371-8511, Japan

E-mail: d.nagano@gunma-u.ac.jp

ABSTRACT

【Purpose】Drunavir (DRV) is a new protease inhibitor and used for the treatment of human immunodeficiency virus (HIV) type-1. Therapeutic drug monitoring of DRV is an important tool to obtain a reliable efficacy of DRV and to avoid its adverse effects such as hepatic disorder. To develop a less-invasive monitoring method, we established a high sensitive analysis of DRV, in very limited volume of plasma by HPLC with fluorescence detection.【Methods】Twenty microliter of IS (voriconazole) dissolved by 50% methanol, 140 μL of saline and 2.0 mL of ethyl acetate were added to 20 μL of plasma. The mixture was centrifuged and the upper organic layer was aspirated and dried up. The residue was dissolved in 200 μl of 50% methanol, and 25 μl of the solution was injected to HPLC. The mobile phase consisted of the mixture of 25 mM Na_2PO_3 / acetnitrile (57/43, v/v) with a flow rate of 1.0 mL/min. The column was YMC-Pack Pro C_{18} column. The peaks of DRV and IS were detected by fluorescence detector at 235 nm (excitation) and 337 nm (emission).【Results and Disscussion】Good linearity (R^2 = 0.999) was obtained over the range from 0.5 to 10 μg/mL. The intra-assay precision and accuracy varied between 1.9–4.3% and -14.5–1.5%, respectively. We believe that this method reduces the damage of patients invasion in blood sampling and is clinically useful for the treat of HIV infection.