spectrometer.

Chang Dong-jin°, Shim Chang-Koo, Chung Suk-Jae

Department of Pharmaceutics, College of Pharmacy, Seoul National University

Enalapril, a prodrug, is the ethyl ester of a long-acting angiotensin converting enzyme inhibitor, enalaprilat. Because enalapril does not contain any appreciable chromophore, detection of the drug in a complex matrix (e.g., biological fluids) has been problematic with conventional detection systems in high-performance liquid chromatography (HPLC). As a result, determination of enalapril level in blood samples has been typically carried out using HPLC-MS/MS in the literature. Since availability of HPLC-MS/MS has been significantly limited, we studied the feasibility of using HPLC-MS, a more widely equipped instrument, for the determination of the drug in human blood samples. In this study, C18 reversed phase column (column temperature of 40 ℃) was used as a stationary phase. Mobile consisted of acetonitrile and formate buffer (1:3, pH 3) with a flow rate of 0.2 ml/min. For the detection enalapril, m/z value was fixed at 377.2. Deproteinating agents (Acetonitrile 100 ㎕, $ZnSO_4$ 10%) were added to human blood sample (i.e., 200 ㎕); Resulting mixture was vortex-mixed and the supernatant collected. Then, an aliquot (5 ㎕) of the supernatant was directly injected on to the HPLC-MS system. Based on the experimental condition, a linear (i.e., r^2=0.9954) correlation between the concentration and the LC-MS response was readily obtained in a concentration range of 3 ~ 225ng of enalapril/ml of human blood using 200 ㎕ blood sample. In addition, variability of the assay was always less than 15 % for precision and accuracy. The limits of detection and quantitation of the method were found to be 1 and 3 ng/ml, respectively. Considering the fact that C_{max} of the drug is approximately 100 ng/ml, the validated HPLC-MS assay has a sufficient sensitivity for the use of pharmacokinetic characterization of enalapril in human subjects (e.g., human bioequivalence trial).

[PE2-2] [10/18/2002 (Fri) 13:30 - 16:30 / Hall C]

The Effect of Nimodipine on the Pharmacokinetics of Cyclosporine in Rabbits

Choi Jun Shik°

College of Pharmacy, Chosun University

The purpose of this study was to report the pharmacokinetic changes of cyclosporine after oral administration of cyclosporine, 10 mg/kg, in rabbits coadministered or pretreated twice per day for 3 days with nimodipine, dose of 5 mg/kg. The area under the plasma concentration-time curve (AUC) of cyclosporine was significantly higher in rabbits pretreated with nimodipine than in control rabbits ($p<0.01$), showing about 149% increased relative bioavailability. The peak plasma concentration (Cmax) , elimination half-life (t 1/2) and MRT of cyclosporine were increased significantly ($p<0.05$) in rabbits pretreated with nimodipine compared with those in control rabbits. This findings could be due to significant reduction of elimination rate constant and total body clearance by pretreated with nimodipine. The effects of nimodipine on the pharmacokinetics of oral cyclosporine were more considerable in rabbits pretreated with nimodipine compared with those in control rabbits. The results suggest that the dosage of cyclosporine should be adjusted when the drug would be coadministered chronically with nimodipine in a clinical situation.

[PE2-3] [10/18/2002 (Fri) 13:30 - 16:30 / Hall C]

Does Agitation Condition Affect the Correlation Between in vitro Permeability of Xenobiotics across Caco-2 Cells and in vivo Bioavailability of the Compounds?

Ho-Jung Yoo°, In-Wha Kim, Soon-Sun Hong, Suk-Jae Chung, Chang-Koo Shim

College of Pharmacy, Seoul National University, Seoul 151-742, Korea

Caco-2 is a cell line derived from the human colon adenocarcinoma and often used as a model for studying intestinal drug absorption. It has been well-known that a strong correlation holds between in vitro permeability across Caco-2 cell monolayers and in vivo bioavailability for various drugs, but the correlation curves varied depending on laboratories. The permeabilities of drugs across Caco-2 cell monolayers have been measured