The mass spectrometric study for the elucidation of cyclofenil's metabolites in human urine was performed by the electrospray ionization (ESI)-tandem mass spectrometry (MS/MS), electron impact (EI) and chemical ionization (CI)-mass spectrometry (MS). Cyclofenil, 4,4'-(cyclohexylidenemethylene) bis(phenyl acetate), is used to stimulate gonadotrophin release by inhibiting the negative feedback effects of endogenous oestrogen. It works as an antiestrogen, by binding with the receptors and preventing gynecomastia. Athletes also use this one, as it has effects similar to both clomiphene and hCG. The cyclofenil and metabolites were extracted from urine and characterized by the high performance liquid chromatography (HPLC) with ESI-tandem mass spectrometry. The metabolites were found by comparing chromatograms of the control urine and the dosed urine. The structures of the metabolites were identified by the MS/MS which can take place secondary fragmentation. And also the metabolites were identified using the gas chromatography /mass spectrometry (GC/MS). The extracted metabolites after hydrolysis from urine were derivatized and separated by the GC and subsequently identified by both of the EI and CI-MS. A di-deacetylated metabolite (m.w. 280) was a major metabolite and the other was a di-deacetylated-hydroxylated form (m.w. 296) of the cyclofenil. The parent was not detected from the urine and the metabolites were identified with the glucuronide metabolites (m.w. 456 and 472) by the HPLC/MS/MS. The identified metabolites can be used to confirm the fact of the cyclofenil's dose in the drug analysis.

[PD4-13] [04/19/2001 (Thr) 13:30 - 14:40 / Hall 4]

Quantitative determination of clarithromycin in human plasma by high-performance liquid chrpmatography using C18 reverse column with flourescence detection chrpmatography

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A validated, highly sensitive and precise high-performance liquid chromatographic method for the determination of the clarithromycin in human plasma is described. A diethyl ether extract, obtained from plasma using a saturated sodium carbonate solution, was treated with 9-fluorenylmethyl-oxycarbonyl chloride FMOC-CL for 40 min at 40℃ and chromatographed capcell Pak C18 MG maintained at 50℃ during elution, using an eluent composed of acetonitrile-hydrogen phosphate buffer, pH 5.0, with 0.05 v/v% triethylamine. Flourescence detection was used at an excitation wavelength of 255nm and an emission wavelength of 315 nm. These results suggest that pre-treated clarithromycin was well separated with internal standard erythromycin on chromatogram file and the lower limit of quantitation was 0.1 ㎍/ml for clarithromycin.

[PD4-14] [04/19/2001 (Thr) 13:30 - 14:40 / Hall 4]

Analysis of Phenylalanine and Tyrosine by Tandem Mass Spectrometry for PKU Screening

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Phenylketonuria (PKU) is an autosomal recessive genetic disorder caused by a deficiency of hepatic phenylalanine hydroxylase (PAH) activity. As a result, phenylalanine is not converted to the amino acid tyrosine. This causes an excessive amount of phenylalanine and toxic metabolites to accumulate in the body, including the brain, blood and urine. Recently, an important development for PKU screening has been the measurement of analytes by tandem mass spectrometry. Seoul Medical Science Institute has begun development of a PKU screening system using this new technology. Analysis for PKU by