study, we have compared the anti-platelet activity and mechanism of epigallocatechin gallate (EGCG) and epigallocatechin(EGC), which are two major components of GTC. We investigated the inhibitory effects of rabbit platelet aggregation by EGCG and EGC. EGCG inhibited collagen- and arachidonic acid-induced platelet aggregation, with IC_{50} values of 80 and 100 uM, respectively. However EGC without an additional galloyl group on C-3, weakly inhibit collagen- and arachidonic acid-induced aggregation of rabbit platelets at the concentration of 200 uM. To investigate the anti-platelet mechanism of EGCG and EGC, we tested the effects of EGCG and EGC on arachidonic acid liberation and thromboxane B_2 conversion. EGCG potently inhibited the arachidonic acid liberation from membrane phospholipids in a dose-dependent manner, while EGC did not show any inhibitory effect. EGCG showed weak inhibition of TxB_2 conversion from arachidonic acid, while EGC significantly inhibited TxB_2 conversion. EGCG and EGC did not alter such coagulation parameters as activated partial thromboplastin time and prothrombin time. Taken together, these observations suggest that the anti-platelet activity of EGCG may be mediated mainly by inhibition of arachidonic acid liberation and that the anti-platelet effect of EGCG is enhanced by the presence of a gallate moiety at C-3 position.

[PA3-10] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

The sphingoid base 1-phosphate as an endogenous marker for Myocardiac Infarction

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The purpose of this study was to determine the possibility of sphingolipid as a diagnostic marker for Myocardiac Infarction(MI), atherosclerosis-related cardiovascular disease. Sphingolipids are known to play a role in the occurrence of atherosclerosis in human blood vessels. Platelet-poor plasma(PPP) and washed platelets were prepared from healthy volunteers and MI patients, and sphingolipids analyzed. Sphingoid base 1-phosphate(S1P) was decreased in PPP from MI patients by 30-50% compared with normal persons, while MI patients showed the statistically different concentrations of S1P in plasma among stable, unstable and variable MI. Washed platelets from MI patients showed approximately 30 pmol and 18 pmol of sphingosine 1-phosphate and sphinganine 1-phosphate, while 270 pmol and 45 pmol per 100μg protein in normal volunteers, respectively. The sphingolipid profile in human platelets are very similar to the one in plasma. The phytosphingosine 1-phosphate was also detected in 20pmol/200μl normal human plasma. These results suggested that S1P may be a sensitive and specific biomarker for human cardiovascular diseases.

[PA3-11] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

The altered sphingolipid metabolism in rats following fumonisin B1 exposure

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Fumonisins are specific inhibitors of ceramide synthase in sphingolipid metabolism. The objective of this study was to investigate whether the elevation of free sphingoid bases 1-phosphate (S1P) are related to the fumonisin exposure. Sprague Dawley rats were injected i.p.

with 10mg/kg fumonisin B1(FB1), and kidney, liver, heart, lung, brain and serum were collected for sphingolipid analysis. Free sphingosine and free sphinganine were determined by HPLC. The concentrations of free sphingoid bases in control rats were approximately 1595 pmol > 898 pmol > 651 pmol > 642 pmol > 563 pmol/100mg wet weight in lung > kidney > liver > brain > heart, while free sphinganine were 294 pmol > 99 pmol > 81 pmol > 76 pmol > 63 pmol in lung > heart > brain > liver > kidney, respectively. FB1-treated rats showed that amounts of elevated free sphinganine were 10.6 nmol > 5.3 nmol > 3.4 nmol > 2.2 nmol > 0.2 nmol in kidney > liver > lung > heart > brain, respectively. Thus, these results indicate that 1) *de novo* sphingolipid biosynthesis is the most active in lung and 2) the most sensitive organ of fumonisin B1 is kidney, while the least sensitive one is brain. Sphinganine 1-phosphate (Sa1P) elevation in FB1 exposure to rats was highest in kidney and lung, and lowest in brain. FB1 increased Sa1P conentration by 678 pmol/100μl serum compared to 6 pmol in control serum. In coclusion, FB1 sensitivity to sphingolipid metabolism are organ-specific and related to the fumonisin toxicity.

[PA3-12] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Distribution of Arsenic in Korean Human Tissues

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Arsenic is a ubiquitous element that ranks 20th in abundance in the earth's crust, 14th in the sea water, and is a component of several hundred minerals. Arsenic and its compounds are mobile in the environment. Groundwater contamination by arsenic is a serious threat to mankind all over the world and it can also enter food chain. Humans are exposed to this toxic arsenic from air, food and water. The current study was performed to investigate the levels of arsenic in the internal organs and to find out correlation with age and interrelationship between tissues in Korean human bodies who had lived in Seoul or Kyonggi do and Honam district. The tissues from 43 Korean cadavers were digested with microwave digestion system and arsenic was determined by ICP-MS. The mean recovery percentages of arsenic in liver were about 80% and arsenic concentrations in human tissues were almost uniform. The mean level of arsenic in internal tissues were as follow ; liver 44.556±25.199ppb, kidney cortex 42.652±22.082ppb, lung 31.020±17.504ppb, cerebrum 35.703±22.591ppb, muscle 43.415±26.619ppb and skin 42.106± 25.831ppb. No significant difference was found in the levels of arsenic between sexes. Significant differences between districts where they had lived were found in all tissues tested. The levels of arsenic in the tissues of cadavers who had lived in Seoul Kyonggi do were higher than those of Honam district. And Positive correlation with age was observed only in the cerebrum($p<0.05$). A significantly high correlations between tissues were observed in all tissues tested. This result also shows that the distribution of arsenic is uniform in internal tissues.

[PA3-13] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Effect of Arsenic on Acetylcholine-Induced Relaxation in Blood Vessels

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Several epidemiological studies suggested that arsenic exposure was strongly correlated with the development of cardiovascular disease such as hypertension. In order to examine whether