[PA4-5] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

CARCINOGENESIS AND ITS CHEMOPREVENTION IN EXPERIMENTALLY - INDUCED GASTROESOPHAGEAL REFLUX DISEASE

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Gastroesophageal reflux disease (GERD) is multifactorial in etiology and is characterized by movement of acid and other noxious substances from the stomach into the esophagus. The most severe histologic consequence of chronic gastroesophgeal reflux is Barrett's esophagus, which has been considered as a premalignant condition often leading to the formation of adenocarcinoma of esophagus. Oxidative DNA damage and subsequent mutation may contribute to oncogenesis related to GERD. In order to clarify the role of oxidative stress in pathogenesis of GERD and Barrett's esophagus, we developed an animal model and investigated the possible protective effects of selected antioxidative substances. For this purpose, Sprague-Dawley rats were subjected to duodenal ligation using a small-lumen ring to provoke GERD. Two days after the operation, the malondialdehyde formation in GERD esophagus was significantly increased with concomitant reduction in cellular reduced-glutathione levels, which correlated well with histologic severity. Increased levels of indicible nitric oxide synthase and cyclooxygenase-2 were also observed. Nuclear extracts from the esophagus of GERD rats exhibited dramatic activation of the nuclear transcription factor, NF-κB, which was associated with increased IκB-α degradation and subsequent nuclear translocation of the p65 subunit. Oral administration of the gastroprotective drug ranitidine or of DA-9601 (100 mg per kg) derived from the medicinal plant Artemisia asiatica markedly attenuated not only histologic abnormalities and formation of reactive oxygen species but also activation of NF-κB in GERD animals.

[PA4-6] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Genotoxic Study of Kamijadowhan in In Vivo Supravital Staining and tk+/ - Gene Assays

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Kamijadowhan (KMJ), one of the oriental medicine, has been reported to have a potent anti-metastasis effect. With the purpose of developing new anti-metastasis drug through the collaboration with other groups, the evaluation of KMJ toxicity was made in our lab. KMJ toxicity was assessed using the $tk^{+/-}$ forward gene mutation assay in L5178Y mouse lymphoma cells and *in vivo* supravital cytogenetic assay in mice. In the $tk^{+/-}$ forward gene mutation assay with L5178Y mouse lymphoma cell, KMJ revealed no significant increase of MF (mutation frequency) that was observed in the presence and absence of S-9 metabolic activation systems at various concentrations of KMJ (313, 625, 1250, and 2500 ㎍/㎖). In the supravital staining micronucleus assay with mouse peripheral reticulocytes, no significant increase of micronucleated reticulocytes (MNRETs) was observed after a single intraperitoneal administration of KMJ (2500, 1250 and 625 ㎎/㎏) to mice. This data indicate that MNRETs in mouse reticulocytes and mutations in the $tk^{+/-}$ forward gene assay are not induced by KMJ.

[PA4-7] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]