Effect of Compound-A, a phenylpropanoid isolated from Arctium lappa fruit, on heterologous passive cutaneous anaphylaxis (HPCA), the release of histamine, and Phospholipase A_2 (PLA2) and phosphadiesterase (PDE) activities were studied by the method of Levine and Vaz. Anti-serum was prepared from ovalbumin (OA)-sensitized male Balb/c mouse at two weeks after the last challenge of OA and alumina gel. Heterologous PCA test in rats were carried out to determine the contents of leakaged pigment in the dorsal skin 30 minutes after i.v. injection of 0.2 ml of 1 % OA and 1 % Evans blue mixture (1 : 1). Peritoneal mast cells from rats were isolated by the discontineous gradients of Percoll and the histamine release from mast cells determined by stimulation of compound 48/80 and A23187 at a concentration of 6.0 μg/ml, respectively. PLA_2 and PDE activities in the asthmatic lung tissue were determined by the method of Pouch. Asthmatic lung tissue were prepared by the callenge of OA twenty-one days after sensitization of OA in guinea pigs. Crude PDE in the supernatant of homogenized lung tissue were precipitated by 70 % H_2SO_4 and purified by the diffusion bag for 18 hours. PLA_2 and the PDE activities were determined by the spectrofluorometric analysis and Kits, respectively. It shows that Compound-A has dose-dependently inhibited the HPCA : Its inhibitory activity at a dose of 25 and 50 mg/kg was 38.1±2.9 and 46.9±2.1 %, respectively. Compound-A was dose-dependently inhibited the histamine release from rat peritoneal mast cells : Its inhibitory activity at a concentration of 30 and 100 μM were 35.3±2.6 and 39.89±3.5 %, respectively. Compound-A at a dose of 30 μM inhibited significantly PLA_2 (26.6±1.5 %) and PDE activities (25.3±2.1 %) in the asthmatic lung tissue. These results indicate that its activity are same as disodium cromoglycate, but less than prednisolone.

[PB2-4] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Effects of Compound-A on Delayed Type Hypersensitivity and Formation of Rosette Forming Cells

YounJoung Kim°, JiYun Lee, KyungWon Kim, SangSoo Sim, ChangJong Kim
Department of Pathophysiology, College of Pharmacy, Chung Ang University

Compound-A is a phenylpropanoid isolated from Arctium lappa fruit. In this experiments, effect of Compound-A on sheep red bood cells (sRBC) - induced delayed type hypersensitivity (DTH) were studied in ICR male mice and determined the Rosette Forming Cells (RFC). Two weeks after sensitization of i.p. injection of sRBC (4×10^8 cells), ICR male mice were challenged by i.p. injection of sRBC (2×10^8 cells). Five days after the challenge of antigen, paw edema induced twenty-four hours after the last challenge by DTH. Drugs were orally administered one hour before the last challenge of antigen. Spleen cells of the mice were isolated by cytosieve (100 mesh), and the viability of spleen cells was determined by trypan blue exclusion test immediately before used. RFC to sRBC were calculated with microscope and exhibited as the number of RFC. It shows that Compound-A at a dose of 50 mg/kg inhibited significantly the DTH as compared with control (41.2±2.9 %, $p<0.05$), and its activity was same as prednisolone acetate (10 mg/kg) and disodium cromoglycate (20 mg/kg). Also Compound-A at a dose of 50 mg/kg inhibited significantly formation of RFC as compared with control (23.2±2.3 %, $p<0.05$), but its activity was less than prednisolone acetate (10 mg/kg). These results indicated that Compound-A can be inhibited reaction of Type Ⅳ Hypersensitivity.

[PB2-5] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Compound-A inhibited the Reversed Cutaneous Anaphylaxis and Complement-Dependent Hypersensitivity

JiYun Lee°, YounJoung Kim, MiYun Yoon, SangSoo Sim, ChangJong Kim
Department of Pathophysiology, College of Pharmacy, Chung Ang University

Effect of Compound-A, a phenylpropanoid isolated from Arctium lappa fruit, on the reversed cutaneous anaphylaxis (RCA) and complement-dependent hypersensitivity (CDH) were studied in SD male rats and ICR male mice, respectively. RCA and hemolysin (HY) titer test are related to reaction of Type II Hypersensitivity. Experiments were carried out to determine RCA as the edema of skin two hours after injection of 0.05 ml/site of

anti-rat serum rabbit serum in SD rat. Drugs were orally administered one hour before antigen challenge. HY titer were determined the hemolysis of sheep red blood cell (sRBC) to spleen cells. Two weeks after sensitization of i.p. injection of sRBC, the mice were challenged with sRBC. On five day after the mice were rechallenged, spleen cells were isolated by cytosieve (100 mesh), the viability of spleen cells was determined by trypan blue exclusion test immediately before used. HY titer to sRBC were carried out to determine hemolysis in inactivated mice serum added guinea-pig complement, and exhibited as $\log_2 X$ (X is the highest dilution). Drugs were orally administered one hour before the last challenge of antigen. It shows that Compound-A has dose-dependently inhibited the RCA as compared with control : Its inhibitory activity at a dose of 25 and 50 mg/kg were 18.0±2.4 and 23.4±1.4 %, respectively ($p<0.05$). Its activity at a dose of 50mg/kg was same as prednisolone acetate at a dose of 10 mg/kg and its activity at a dose of 25 mg/kg was same as disodium cromoglycate at a dose of 20 mg/kg. And Compound-A at a dose of 50 mg/kg inhibited significantly the HY titer as compared with control (34.1±3.0 %, $p<0.05$), but its activity was more active than disodium cromoglycate (20 mg/kg) and less active than prednisolone acetate (10 mg/kg). Compound-A has the dose-dependently inhibitory action on RCA and HY titer. These results showed that Compound-A has the inhitory acivity of type II hypersensitivity such as RCA and CDH.

[PB2-6] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Compound-A inhibited the Asthmatic Responses in the Conscious Guinea Pigs

JiYun Lee°, JinHee Lee, YounJoung Kim, SangSoo Sim, ChangJong Kim
Department of Pathophysiology, College of Pharmacy, Chung Ang University

Effect of Compound-A, a phenylpropanoid isolated from Arctium lappa fruit, on the early- (EAR) and late-phase asthmatic responses (LAR) of guinea pigs were studied in vivo. Guinea pigs were sensitized by injection of 100 mg of ovalbumin (OA). Twenty-one days after sensitization, animals were challenged with exposure to aerosolized 1 % OA for five minutes in double-chambered plethysmograph box with jet nebulizer. Immediately and twenty-four hours after challenge, EAR and LAR asthmatic responses were determined the tidal volume (TV), respiration rate (RR) and specific airway resistance (sRaw), and then animals anethetized and taken the bronchoalveolar lavage fluid (BALF) by lavage the lung with HEPES buffer through cannulation into trachea. BALF cytospined and stained by Wright"s stain, and the contents of leukocytes, histamine, phospholipase A_2 (PLA_2), eosinophil peroxidase (EPO) and protein were measured in BALF. The TV at a dose of 25 mg/kg inhibited 42.1±9.3 % in EAR, 21.1±6.3 % in LAR as compared with control, respectively ($p<0.05$). sRaw at a dose of 25 mg/kg increased 187.5±33.4 % in EAR, 97.1±15.5 % in LAR as compared with control, respectively ($p<0.05$). but its activity was less than dexamethasone (5 mg/kg) and disodium cromoglycate (10 mg/kg). And Compound-A at a dose of 50 mg/kg inhibited significantly recruitment of total leukocytes and neutrophils ($p<0.05$), and inhibited significantly recrument of eosinophils at a dose of 25 mg/kg, but its activity was less than dexamethasone (5 mg/kg) and disodium cromoglycate (10 mg/kg). Also Compound-A at a dose of 50 mg/kg inhibited significantly protein exudation and PLA_2 ($p<0.05$), its activity was same as dexamethasone (5 mg/kg) and disodium cromoglycate (10 mg/kg), respectively. Compound-A dose-dependently inhibited the histamine release ($p<0.05$), but its activity was less than dexamethasone (5 mg/kg). These results showed that Compound-A dose-dependently inhibited asthmatic responses.

[PB2-7] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Effect of Ascorbic Acid on the Activity and Gene Expression of Cytochrome P450 in Sepsis

Kim Joo-Young°, Park Sang-Won, Lee Sun-Mee
College of Pharmacy, Sungkyunkwan University

Sepsis remains common surgical problems with high morbidity and mortality despite improvement in the management for septic patient. Although hepatocellular dysfunction occurs during sepsis, the mechanism responsible for this remains unclear. In sepsis, a state of severe oxidative stress is encountered, with host endogenous antioxidant defenses overcome. Therefore, the aim of this study was to determine whether specific