Endotoxin- Induced Thrombosis in Rats

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The concerns about diseases of a cardiovascular system have increased with the rise of living standard and the trend of advanced age. Among these, the thrombus causes the serious disease like apoplexia, cerebri and myocardial infarction. Thrombosis is caused by the injury of endothelium and the alteration in normal blood flow.
Endotoxin is the product from gram negative bacteria, and protein-lipo- polysaccharide is known as a main component of it. It is used in experiment for antithrombosis activity screening.
In our study, we injected endotoxin(4000EU/kg, i.v.) in rats at 1hr after administration of *Carthamus tinctorius L.* Semen butanol fraction(500mg/kg, p.o.). To investigate activities of *Carthamus tinctorius L.* Semen butanol fraction for blood coagulation system, we measured blood clotting time, prothrombin time, fibrinogen and fibrinogen degradation products *in vivo*, antiplatelet aggregation activity and the stabilizing effect on heat-induced hemolysis *in vitro*. And then we measured superoxide dismutase acitivity, glutathione content, glutathione S-transferase activity and malon dialdehyde content to figure out the mechanism of anticoagulation.
As a result, *Carthamus tinctorius L.* Semen butanol fraction has antiplatelet aggregation activity *in vitro*, delays blood clotting time and prothrombin time, and decreases fibrinogen and fibrinogen degradation products *in vivo*. Also, it increases superoxide dismutase activity, glutathione content and glutathione S-transferase activity, and decreases malon dialdehyde content.
On the basis of our study, we may propose that a blood coagulation system and cell injury is suppressed by the antithrombosis effect of *Carthamus tinctorius L.* Semen.

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

Analysis of Benzophenone and 4-Nitrotoluene in Water, Sediments and Soils by Gas Chromatography/Mass Spectrometry

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The benzophenone (BP) and 4-nitrotoluene (4-NT) classified as endocrine disrupting chemicals were determined in water, sediment and soil. The modified SPEED98 method for water samples and ultrasonic extraction of US EPA (method 3550B) method for sediment and soil samples were used for the analysis of BP and 4-NT. n-Hexane was used for the extraction of BP and 4-NT in the water, sediment and soil samples. 2㎕ of the concentrated solution (0.3 ㎖ of final volume) was applied to GC/MSD. The method detection limits of BP were 10 ng/ℓfor water samples, and 0.25 ng/g and 1 ng/g for sediment and soils. For 4-NT, method detection limits were 5 ng/ℓ for water samples and 1 ng/g for sediment and soil samples. As a result, BP concentrations were ranged from 24.4 ng/ℓ to 53.6 ng/ℓat 7 sites of water samples and from 10.3 ng/ℓ to 13.9 ng/ℓ at 2 sites of soil samples, which were higher than those of water and soil blanks. 4-NT was not detected in water, sediment and soil samples.

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

Effect of glycolic acid alone or combination with UVB on skin iritation and inflammation in guinea pigs

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SH

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The use of alpha-hydroxy acids(AHAs) containing cosmetics has aroused the public interest with their supposed ability to reduce wrinkles, roughness, age spots of skin and other signs of sunburn damages. The excessive and chronic use of AHA containing cosmetics could cause skin irritation, swelling and sunburn, and may increase photo-toxicity and photo-carcinogenesis. However, exact dose-response relationship, photo-toxic effects and skin toxic mechanisms have not been known. In the present study, dose and time effects of glycolic acid, one of the most commonly used AHAs, alone or combination with UVB on skin irritation and inflammatory response were examined. Skin irritation by glycolic acid and UVB alone was increased in dose and time-dependent manners. Higher dose of glycolic acid and UVB (3 J/cm2) treatment for 2 weeks caused severe skin irritation. Lower dose of glycolic acid and UVB (0.4 J/cm2) caused slight or mild irritation. However, lower glycolic acid enhanced UVB-induced skin irritation resulting in severe irritation. Histological examination showed that glycolic acid dose dependently reduced integrity of stratum corneun and increased skin thickness, and higher dose of glycolic acid destroyed epidermal layer without inflammatory response. UVB increased skin thickness, and caused condensed inner stratum corneum and reduced its integrity of outer layer. Glycolic acid enhanced UVB-induced the reduction of stratum corneum integrity. Completely lost of organization of stratum corneum was seen in UVB and glycolic acid combination treated skin. Glycolic acid did not change basal or UVB-induced PGE2 production and COX-2 protein expression. UVB,whereas,increased PGE2 (50% over control by higher dose of UVB) and COX-2 expression(2 and 3 fold). These results show that glycolic acid cause skin irritation in a dose and time dependent manners and enhance UVB-induced skin irritation, however glycolic acid-induced skin irritation may not be associated with inflammatory response.

[PA4-12] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Co-carcinogenic potential of glycolic acid in hairless mouse skin

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Alpha-hydroxy acids (AHAs) are organic acids present in natural sources such as fruits, wine and milk.Such sources of AHAs have been used as cosmetic material for several years in the public with their supposed ability to reduce wrinkles, roughness, age spots of skin and other signs of sunburn damages. However. It is also true that the excessive and chronic use of AHAs containing cosmetics could cause skin irritation, swelling, sunburn, photo-toxicity, and that increase of photo-carcinogenesis has been suspected. Previous our study showed that glycolic acid, one of the most commonly used AHAs increased skin irritation dose dependently after treatment for 14 consecutive days. In the present study, we examined the tumor (anti)promoting ability of glycolic acid on two-stage carcinogenesis test using inbred hairless female mice (15/group) skin tumors either induced by 7,12-dimethylbenz[a]anthracene (DMBA) as an initiator and glycolic acid (twice a week) as a promoter, or induced by UVB followed glycolic acid (12.5 mg/cm2). Glycolic acid promoted parpilloma incidence and multiplicity initiated by DMBA similar to 12-O-tetradecanoyl phorbol-13-acetate (TPA), however, inhibited UVB-induced parpilloma formation. The expressions of PCNA, cyclins, cyclin dependent kinase and cyclooxygenase-2 , and the activation of transcription factor NF-kB and AP-1 were concomitantly decreased in glycolic acid treated skin compared to UVB treated skin. Change of these factors by glycolic acid may collectively contribute to during the skin carcinogenesis.

[PA4-13] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

The Roles of ATP and Calcium in Morphology Changes and Cytotoxicity Induced by Benzoquinone in Platelets