D-37 The Study of Effects of Metallothionein in Glutamate Catabolism of Liver, Kidney and Pancreas of Steptozotocin-induced Diabets in Rats

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The protective roles of metallothionein(MT) in streptozotocin(STZ)-induced pancreatic damage were investigated using zinc(Zn) as the inducer of MT synthesis in rats. Diabets was produced in a group of Sprague Dawley rats by a single injection of STZ. In another group of rats, to induce the synthesis of MT, Zn was injected subcutaneously about 12 h before injection of STZ. Rats were sacrificed at about 30 h after adminstration of STZ. The activity of GDH was lower than GOT and GTP. In each groups of the liver, kidney and pancreas, the activities of GDH, GOT, GPT were the highest in Control group, Zn group the second, Zn+STZ group the third, and STZ group was the lowest in order. In the activity of GDH(deaminating), Zn group and Zn +STZ group were hardly different. Among four groups, the activities of GDH, GOT, GPT were highest in the liver, the next in the kidney and the last in the pancreas, but in the activity of GDH and GPT were the higher in the pancreas than in the kidney. The results support that pretreatment with Zn can partially prevent the development of diabets induced by STZ injection and it may be related to effects of MT as a scavenger for the oxygen free radicals.

D-38 Influence of Polyamines on the Proliferation of MCF-7 Human Breast Cancer Cells

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Polyamines(P A) have been known as mediators of cell growth and differentiation. In the present experiments, the importance of PA in estrogen-dependent MCF-7 human breast cancer cells was studied by using PA metabolic inhibitor. The levels of intracellular PA were increased to 249%(putrescine) and 171%(spermidine) with the treatment of 17 beta-estradiol(E2). Even PA alone showed significant mitogenic effect on MCF-7 cell with 168%(spermidine) and 185%(spermine) of untreated control. Putrescine did not give any influence in cell proliferation. Alfa-difluoromethylornithine(DFMO), a suicidal PA metabolic inhibitor, caused a dose-dependent inhibition of proliferation. The levels of cellular PA were severely decresed to 28%(putrescine), 26%(spermidine), and 51%(spermine) of control, within 48hrs, with 5 mM DFMO. DFMO also blocked the mitogenic effect of E2. The inhibitory effect of DFMO was partially reversed by externally added PA.