

论著

MDA和SOD在VC、VE对⁶⁰Co照射家兔作用中的变化意义

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摘要 背景与目的: 研究维生素C(VC)、维生素E(VE)对辐射损伤家兔的保护作用以及SOD和MDA在这一作用中的意义。材料与方法: 健康家兔30只, 按体质量和性别均衡随机分为5组, 每组6只。阴性对照组和阳性对照组, 均iv生理盐水1 ml/kg和ig处理过的花生油1 ml/kg, 其余3组分别为复合实验1、2、3组: 分别iv剂量为10、20、30 mg/kg的VC, 同时ig剂量分别为20、40、60 mg/kg的VE。喂养第3 d阳性组及各实验组给予剂量为4.5 Gy的⁶⁰Co γ线全身照射。照射后继续给药至第5 d后, 宰杀家兔取肝脏和腹腔静脉血后检测SOD和MDA的变化。结果: 家兔经照射后, 血清照射组SOD活性较正常组增加, 而给予VC、VE复合干预之后, 随干预剂量增加, 活性稍有降低, 但均高于正常组; 而肝脏照射组SOD的活性较正常组低, 给予不同剂量的干预因素后, 各组SOD值较照射组均增高。照射后血清MDA较照射有明显下降趋势, 高剂量时最低。而给予干预因素后, 肝脏MDA较照射组均明显降低。且中、高剂量组较较低剂量组均低。结论: 照射后, 肝脏即应激性地释放SOD入血液, 使血液中SOD增高, 执行抗氧化功能, 给予干预因素后, 血液中MDA即降低, 因此肝脏SOD向血中释放减少。

关键词 [MDA](#); [SOD](#); [抗氧化](#); [辐射损伤](#)

Significance of Changes of SOD and MDA in Rabbits Protected by Vitamin C, Vitamin E From Injured by Irradiation

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Abstract BACKGROUND & AIM: To Study the dose-effects relationship between Vitamin C(VC), Vitamin E(VE), and lipid peroxidation with the model of rabbit injured by radiation. **MATERIAL AND METHODS:** Chinese rabbits were chosen as the experimental animals and were randomly divided into 5 groups. They were negative control group, positive group, and trial groups of VC, VE. The trial groups contained three different dosages of VC and three different dosages of VE. Peanut oil was selected as diluent which had been gotten rid of vit E. The five groups were supplied by injection of vein with the dosages of VC 10 mg/kg, VC 20 mg/kg, VC 30 mg/kg everyday respectively. The three VE groups were supplied by gavages with the dosage of VE 20 mg/kg, VE 40 mg/kg, VE 60 mg/kg, everyday respectively too. On the third day all groups, except negative control group, were radiated by ⁶⁰Co with the dose of 4.5 Gy. Then they were fed as before, and on the sixth day all rabbits were killed, blood and liver were removed for the analysis of changes in catalytic activity of SOD and content of MDA by means of Auto-machine. **RESULTS:** After the radiation, the catalytic activities of hepatic SOD in radiation groups were higher than those in the negative control group ($P < 0.01$), and trial groups of VC and VE showed some protective effect of rabbit against radiation, and there was a dose-effect relationship between the VC、VE and radiation injury. The content of hepatic MDA in trial group was lower than positive group ($P < 0.01$). They showed some effect of protective effects against increase of MDA, and showed the dose-effect relationship between the dosage of VC、VE and protection against injury of irradiation. **CONCLUSION:** The effect of individual use of VC、VE has protest effect of SOD catalytic activity and inhibition on MDA which exists dose-effect relationship; The antioxidation of vit.E can not protest against radiation of peripheral blood

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and immunological cells. When VC and VE were given to rabbits together, there was a protective effect on rabbits injured by radiation of ^{60}Co γ ray.

Keywords SOD; MDA; radiation injury; antioxidation

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