THE TIMELINESS RESEARCH OF OXIDATIVE/ANTI-OXIDATIVE SYSTEM DURING THE RABBIT ATHEROSCLEROTIC MODELLING

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Objectives The purpose of the present study was to investigate the effect of different enzymes on the anti-oxidative defense system and oxidative stress in the rabbit model of atherosclerosis.

Methods Twenty four male Japanese white (JW) rabbits weighing approximately 2.0 kg were randomly divided into two groups: normal group (NOR) and high cholesterol group (CHOL). The high cholesterol group supplemented with high cholesterol diet and injected intravenous bovine serum albumin and their aortas were injured by balloon. The blood sampling of ear border vein were detected in 0, 3rd, 6th, and 10th week. We survey the content of serum triglyceride spectrophotometer detection (TG), total cholesterol (TC) and total antioxidant capacity (T-AOC), catalase (CAT) with spectrophotometer and oxidation low-density lipoprotein (LDL), ox-glutathione peroxidase (GSH-Px) with Enzyme-linked Immunosorbent Assay (ELISA). After 10 weeks, all the rabbits were sacrificed.

Results ROS levels were significantly high in high cholesterol group than in normal group. SOD level of CHOL group was significantly higher than that of NOR group, but NO level was significantly lower in high cholesterol diet group than in NOR group in the 3rd, 10th weeks, especially at the end of the 10th week; The CAT level and the T-AOC were increased significantly at the end of the 10th week, MDA and ox-LDL levels were increased in each time (p<0.05) or (p<0.01). No significant main effect was found in GSH-Px between the two groups (p>0.05).

Conclusions CHOL group get the damage of lipid peroxidation during the modelling, the oxidative stress and anti-oxidative defense system have been imbalanced. The different antioxidant enzymes may have the different initial effective time, and resistance the damage of active oxygen to the body.