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OXIDISED LOW-DENSITY LIPOPROTEIN CHOLESTEROL AND THEIR RATIO IN THE DIAGNOSIS AND TREATMENT OF CORONARY HEART DISEASE

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Objective Oxidised LDL cholesterol (ox-LDL-C) is considered to be a key factor of initiating and accelerating atherosclerosis (AS). The purpose of this study is to observe the level in CAD (coronary artery disease) patients and Non-CAD patients. And we investigated the value of ox-LDL and oxidation ratio of LDL (ox-LDL/TC, ox-LDL/HDL-C and ox-LDL/LDL-C) in the diagnosis and prognosis of CAD patients. Futhermore, we aim to observe the effect of statins in the level of ox-LDL and oxidation ratio of LDL (ox-LDL/TC, ox-LDL/HDL-C and ox-LDL/LDL-C), and discuss whether statins still have similar effect to ox-LDL in earlier period (within 2 weeks).

Methods and results Blood ox-LDL, total cholesterol (TC), high density lipoprotein cholesterol (HDL-C), low density lipoprotein cholesterol (LDL-C) and triglyceride (TG) were measured in patients with acute myocardial infarction (AMI, n=177), unstable angina pectoris (UAP, n=195), stable angina pectoris (SAP, n=228), normal control (n=120) and high risk control (n=140). TC and TG were measured by enzymic method, HDL-C and LDL-C were measured by homogeneous method, and ox-LDL was measured by capture ELISA. Mean value of ox-LDL and oxidation ratio of LDL is significantly higher in the CAD group than in the two control groups. The area under the curve (AUC) of receiver operating characteristic curve (ROC curve) is a criterium to evaluate the accuracy of diagnosing a disease. The AUC of ox-LDL, ox-LDL/TC, ox-LDL/HDL-C, ox-LDL/LDL-C and apoA1/apoB were more than 0.50 ($p<0.001$), while the AUC of TC, LDL-C, HDL-C were less than 0.50 ($p<0.001$). Multivariate logistic regression analysis found that age and ox-LDL/LDL-C relate with short-term and long-term prognosis ($p<0.05$). Furthermore, 584 CAD patients received treatment of statins for 2 weeks. After treatment HDL-C and apoA1/apoB were improved 10% and 14% respectively, TC, TG, LDL-C, ox-LDL, ox-LDL/TC, ox-LDL/HDL-C and ox-LDL/LDL-C decreased 22%, 1.5%, 29%, 38%, 29%, 23% and 25% respectively. And the decrease of ox-LDL by statins is independent with LDL-C and TC.

Conclusions ox-LDL and oxidation ratio of LDL (ox-LDL/TC, ox-LDL/HDL-C and ox-LDL/LDL-C) are closely related with AS, and they are better biomarkers for discriminating between patients with coronary artery disease and healthy

subjects. Furthermore, they are valuable for prognosis in CAD patients. Statins can decrease the level of ox-LDL significantly, and the effect is independent with LDL-C and TC.