

ABSTRACT

The possible involvement of oxidative damage is a newly identified risk factor for progression of atherosclerosis. There is some evidence that antioxidant supplementation may be beneficial for the prevention of coronary heart disease. In this case-control study, we investigated the association between Myocardial Infarction (MI) and total plasma antioxidative status by measuring the plasma total antioxidant capacity by ferric reducing ability of plasma (FRAP) assay. Other relevant risk factors for coronary artery disease (CAD) such as total cholesterol (TC), low-density lipoprotein (LDL), triacylglycerol (TAG), high-density lipoprotein (HDL) and blood glucose were also determined. The cases consisted of 30 newly diagnosed patients (males=25, females=5) admitted to coronary care unit (CCU) of the Teaching Hospital, Kurunegala with clinical chest pain and electrocardiographically defined first acute myocardial infarction or unstable angina. Patients were matched with age (± 5 y) and sex with apparently healthy controls selected from the community. The FRAP and HDL cholesterol were significantly lower in the cases than in the controls. The plasma TAG and TC: HDL ratios were significantly higher in the cases than controls. The logistic regression analysis showed that low level of HDL cholesterol (OR=4.8, 95% CI= 1.58-14.25), higher level of TC: HDL ratio (OR=4.4, 95% CI=1.3-14.5) and smoking habits (OR=3.1, 95% CI=1.06-9.27) to be significant independent risk factors for MI. Lower plasma total antioxidant capacity (measured as FRAP) is associated with increase of risk of MI, though not significant (OR for first tertile= 2.8, 95% CI= 0.77-10.0 and OR for second tertile= 1.2, 95% CI= 0.35-4.31). In conclusion, in this group of patients the plasma total antioxidant capacity was lower than that matched healthy controls, which may constitute a risk factor for CAD, and further it confirmed that smoking, higher level of TC: HDL ratio and low level of HDL are independent risk factors for the MI.