Summary

Lowering Low-Density Lipoprotein Cholesterol (LDL-C) has been the primary focus in lipid modification for treatment and prevention of atherosclerosis. Lipid-lowering treatment with hydroxy-3-methylglutaryl coenzyme A reductase inhibitors ('statins') which reduce LDL-C, has achieved dramatic reductions in cardiovascular events.

However, despite attaining optimal LDL-C targets in all the statin trials, there still remains a substantial residual risk in the active treatment arms. The Framingham Heart Study showed that low High-Density Lipoprotein Cholesterol (HDL-C) (defined as < 40 mg/dl for men and < 50 mg/dl for women) was more potent as a risk factor for Coronary Artery Disease (CAD) than high LDL-C.

HDL-C levels are inversely related to cardiovascular events, even in patients receiving statin therapy. HDL-C levels continue to be inversely associated with cardiovascular events among those on statins with well controlled LDL-C levels, including those with LDL-C < 70 mg/dl. Moreover, moderate increases in HDL-C in statin-treated patients are correlated with regression of coronary atherosclerosis.

The aim of this work was to investigate the significance of high density lipoprotein cholesterol level after statin therapy on the outcomes of patients with coronary artery disease who undergo PCI.

Results

This prospective observational study included 100 patients with CAD who present to Alahrar hospital (at Zagazig) PCI lab with acute coronary syndrome (ACS) and patients had undergone successful elective PCI from 10/2011 to 3/2012 and continued to take statins after PCI and their initial LDL-C levels is below 100 mg/dl.

All patients underwent baseline evaluation at index PCI including: history taking, physical examination, electrocardiography, echocardiography, laboratory investigations and percutaneous coronary intervention.

According to lipid pofile testing results, patients with LDL-C > 100 mg/dl were excluded, and then, patients will be divided into 2 groups: The first group with low HDL-C and the second group with normal HDL-C.

All patients underwent follow-up laboratory tests using fasting blood samples in the morning after fasting for 8 hours or more. All patients were followed up for any symptoms or signs of ischemia, If standard ECG is positive for new ischemia with elevated cardiac biomarkers, the patients were referred to coronary angiography examination to detect possible complications.

Patients with recurrent ischemic pains with persistent and consistent level not controlled by medication since stent implantation were referred for coronary angiography examination to detect possible complications.

Results

At end of follow up the Composites of Major Adverse Cardiac Events *(MACE)* include cardiac deaths, myocardial infarction, target lesion revascularization and target vessel revascularization.

The results showed that there was no significant difference between two groups in angiographic characteristics (number of vessels affected and number and type of stsnts), sex, smoking, diabetes mellitus and hypertension at index PCI.

Also the results showed that there were significant differences between the two groups in target lesion revascularization, target vessel revascularization and major adverse cardiovascular events during follow up.

During follow-up days, 17 patients with low HDL-C levels and 8 patients with high HDL-C levels had MACE. The incidence of MACE was significantly higher in patients with low follow-up HDL than in those with high follow-up HDL.

Although both groups had comparable incidences of all-cause death or myocardial infarction, the low follow-up HDL group had a significantly higher incidence of TLR and TVR. Multivariate analysis showed that low follow-up HDL was associated with significantly higher incidence rates of MACE.

Results

The subgroup analysis showed that there was significant difference between the two groups in incidence of complications in both BMS and DES patients as incidence of complications was low in patients with high HDL in both BMS and DES patients and incidence was high in patients with low HDL in both BMS and DES patients.

The subgroup analysis showed also that there was significant difference between the two groups in incidence of complicatios in relation to DM as incidence of complications was lower in diabetic patients with high HDL than in diabetic patients with low HDL.

The subgroup analysis showed also that there was significant difference between the two groups in incidence of complicatios in relation to HTN as incidence of complications was lower in hypertensive patients with high HDL than in hypertensive patients with low HDL.

The subgroup analysis showed also that there was significant difference between the two groups in incidence of complicatios in relation to smoking as incidence of complications was lower in smoker patients with high HDL than in smoker patients with low HDL.