

Correlation of High Sensitivity C-reactive Protein to Presence, Extent and Severity of Angiographic Coronary Artery Disease in Patients with Chronic Stable Angina

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Abstract:

Background: C-reactive protein is a valid marker of cardiovascular risk. It is not known whether C-reactive protein is a marker of atherosclerotic burden or whether it reflects a process (e.g. inflammatory fibrous cap degradation) leading to acute coronary events. This study was performed to determine whether the concentration of high sensitivity C-reactive protein (hs-CRP) is associated with coronary atherosclerosis assessed by coronary angiography in patients with chronic stable angina. **Methods and Results:** We studied a total of 90 men and women (16 women, 74 men, mean age 53.8 ± 8.8 years) with symptoms of chronic stable angina and referred for coronary angiography in Fayoum university hospital. Baseline data collection comprised clinical characteristics and conventional risk factors for coronary artery disease, levels of serum lipids and fasting hs-CRP. The relation between serum hs-CRP levels and the severity and extension of coronary lesions was studied. The coronary angiograms were evaluated in a blinded manner according to Sullivan scores: vessel score (0-3 points for 0-3 vessels with coronary artery disease), stenosis score (0-3 points; number and severity of coronary stenosis or lesions; 0 for no, 1 for coronary lesion with diameter stenosis less than 50%, 2 for 50%-75%, and 3 for more than 75% diameter stenosis), and extent score (0-3 points; segment-extension of all coronary lesions within the total coronary vessel length). According to the total score values obtained, groups for coronary artery disease risk were defined and analyzed for correlations with age and levels of total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, triglycerides and hs-CRP levels in serum. From the 90 patients, 30 were found to have no or minimal coronary artery disease (group A; score 0-3), 40 had moderate (group B; score 4-8) and 20 had severe (group C; score more than 8) coronary artery disease assessed by coronary angiography. Estimates of the relative risk of coronary heart disease for the second quintile of serum C-reactive protein as compared with the first quintile were 1.7 (95 per cent confidence interval 1.2-2.4) while estimates of the relative risk of coronary heart disease for the third quintile of serum C-reactive protein as compared with the first quintile were 1.5 (95 per cent confidence interval 1.1-1.9). Serum hs-CRP levels were $4.16 (\pm 1.98)$ mg/L, $6.59 (\pm 2.12)$ mg/L and $7.65 (\pm 2.42)$ mg/L in groups A, B and C and represented an independent risk factor for the presence of coronary artery disease assessed by coronary angiography ($p < 0.01$). There was a significant difference between the mean value of hs-CRP in patients with group A when compared to patients of groups B and C ($p < 0.001$), while no significant difference exist between the mean value of hs-CRP in patients with group B when compared to patients of group C ($p = 0.231$). Moreover, the presence of angiographic coronary artery disease was associated with patient age ($p = 0.001$), male sex ($p < 0.001$), high LDL-cholesterol levels ($p = 0.001$), low HDL-cholesterol levels ($p = 0.0001$). **Conclusions:** These results suggest that the serum concentration of hs-CRP is associated with presence, but not severity, of coronary artery disease in patients with chronic stable angina.

Key Words: *hs-CRP – Atherosclerosis and CAD.*

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