Implication to clinical practice: Clinical identification of xanthomas and knowledge of its association with CAD is essential for every physician as early diagnosis and treatment can prevent premature deaths due to MI.

Correlation of individual lipid fraction with carotid intima-media thickness in young (<40 yrs) coronary artery disease patients

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Introduction: Dyslipidemia has been accepted as a risk factor for cardiovascular diseases and a marker of atherosclerosis. Data is scarce regarding the impact of individual lipid fractions on atherosclerosis, especially in young (<40 yrs). The present study aims to ascertain the association of individual lipid fractions on CIMT in young (<40 yrs) patients presenting with coronary artery disease (CAD).

Methodology: A cross-sectional assessment of records of 156 young (<40 yrs) patients with CAD, attending the preventive cardiology clinic in New Delhi, between 2008 and 2015 was undertaken. Details of medical history, biochemical parameters, and CIMT measures were recorded.

Results and discussion: Of the 156 patients in this study, 16 were females, 140 were males, with a mean age of 32.92 ± 4.52 yrs, of whom 10 were known diabetics and 31 had long standing hypertension. The mean CIMT (mCIMT) values for 156 individuals were 0.60 ± 0.13 mm. Mean TC was 160.4 ± 45 mg/dl, HDL was 35.6 ± 7.75 mg/dl, LDL was 94.2 ± 38.0 mg/dl, and TG was 144.1 ± 87.6 mg/dl. An increase in mean TC (r = 0.18) and triglycerides (r = −0.39) was associated with an increase in mCIMT. No statistically significant correlation was found between the rest of the parameters and mCIMT.

Conclusions: Among the commonly measured lipid fractions, total cholesterol and triglycerides were found to have a statistically significant positive correlation with mCIMT in young CAD population, suggesting that total cholesterol and triglycerides should be an important treatment goal in patients with CAD to prevent increase in CIMT which would translate into decreasing atherogenesis and cardiovascular mortality.

Comparison and correlation of lipid fraction with atherosclerosis in young (<40 yrs) and older coronary artery disease patients

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Introduction: Dyslipidemia has been accepted as a risk factor for cardiovascular diseases and a marker of atherosclerosis. Data is scarce regarding the differences in impact of individual lipid fractions on atherosclerosis in young (<40 yrs) and older CAD patients. The present study aims to compare and correlate lipid fraction with atherosclerosis in young (<40 yrs) and older coronary artery disease patients.

Methodology: A cross-sectional assessment of records of total of 518 patients of CAD were enrolled for the study, of whom 156 were young (<40 yrs) and rest were more than 40 yrs attending the preventive cardiology clinic in New Delhi, between 2008 and 2015. Details of medical history, biochemical parameters, and CIMT measures were recorded. Pearson correlation was used to find the correlation between mean CIMT and lipid fractions.

Results and discussion: The mean age of the study group was 46.1 yrs. The lipid parameters of the two groups were not significantly different; however the mean CIMT between the two groups was significantly different. The total group did not show any correlation between the CIMT and lipid parameters but when the groups were analyzed independently the CIMT showed a significant correlation with total cholesterol and triglyceride.

Conclusions: Our study showed that there is no statistically significant correlation among the commonly measured lipid fractions with mCIMT when compared between young and older CAD population.

Role of AMP-activated protein kinase (AMPK) in vascular endothelial protection

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Background: Adenosine monophosphate-activated protein kinase (AMPK), although known for its role in regulating cellular metabolism, has recently emerged as an important kinase involved in vascular endothelial protection. We noted it to have similar actions as those of MnSOD, HO-1, and DAF. We also showed that AMPK activates CREB. Our results

<table>
<thead>
<tr>
<th>Serum lipid fraction</th>
<th>Young CAD group (n = 156)</th>
<th>Old CAD group (n = 362)</th>
<th>p value for difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>mCIMT value (mm)</td>
<td>0.604 ± 0.129</td>
<td>0.720 ± 0.161</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TC (mg/dl)</td>
<td>160.4 ± 45.0</td>
<td>154.8 ± 40.04</td>
<td>0.22</td>
</tr>
<tr>
<td>HDL (mg/dl)</td>
<td>35.6 ± 7.75</td>
<td>35.9 ± 9.89</td>
<td>0.78</td>
</tr>
<tr>
<td>LDL (mg/dl)</td>
<td>94.2 ± 38.04</td>
<td>90.6 ± 30.93</td>
<td>0.38</td>
</tr>
<tr>
<td>TG (mg/dl)</td>
<td>144.1 ± 87.37</td>
<td>143.3 ± 82.44</td>
<td>0.93</td>
</tr>
<tr>
<td>TC/HDL ratio</td>
<td>4.38 ± 1.88</td>
<td>4.34 ± 1.61</td>
<td>0.84</td>
</tr>
<tr>
<td>HDL/LDL ratio</td>
<td>0.46 ± 0.21</td>
<td>0.49 ± 0.40</td>
<td>0.46</td>
</tr>
</tbody>
</table>

| Methodology: Human umbilical vein endothelial cells first underwent a flow perfusion assay. They were then treated with AICAR (an AMPK activator), for 24 h, AMPK adenosine (Ad CA-AMPK) for 18 h or the combination of atorvastatin and rapamycin for 2 h and either immunoblotted for various proteins or analysed via flow cytometry. Transcription factor CREB was silenced using siRNA.

Results: In this study we showed that oscillatory shear stress may be responsible for down-regulating levels of phospho-AMPK and HO-1. Cells treated with AICAR had a significant increase in MnSOD, HO-1, and DAF protein expression.

Ad CA-AMPK was shown to deliver active forms of AMPK into the cells and infection of this adenovirus also up-regulated the levels of MnSOD, HO-1, and DAF. We also showed that AMPK activates CREB.