HDL & LDL Status in Untreated Newly Detected Type 2 Diabetic Patients

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**Abstract**

**Objective:** The study was conducted with a view to find out HDL & LDL status in newly detected untreated Type II diabetic patients. **Methods:** Study was carried out on 116 (66 male & 50 female) newly diagnosed untreated type 2 diabetes patients aged 40 - 65 years and were selected randomly for study. Fifty (25 male & 25 female) non diabetic subjects aged 40 - 65 years were randomly selected as control. **Results:** LDL - C was significantly higher (P<.0001) and HDL -C was significantly lower (<.0001) in study group in comparison to control group. **Conclusion:** Dyslipidemia is commonly found in type - 2 diabetic patients. It is a risk factor for microvascular complications. So it should be controlled effectively.

**Key words:** Diabetes Mellitus; Type-2 DM; HDL; LDL.

**INTRODUCTION**

Type-2 diabetes is often associated with dyslipidaemia. Type-2 diabetes is frequently associated with reduced concentration of HDL and increased concentration of LDL1-5. They are at risk of coronary artery & peripheral vascular and cerebro vascular disease due to atherosclerosis and is a major cause of morbidity and mortality6. The Prevalence is 2 percent7. So it is reasonable to study HDL and LDL status in type-2 diabetes, when morbidity and mortality from diabetes and its complication is rapidly increasing day by day. WHO describes above problems as global epidemic. Current diagnostic value of LDL & HDL cholesterol.

<table>
<thead>
<tr>
<th>Lipid panel</th>
<th>Range (mg/dl)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDL</td>
<td>100-129</td>
<td>Near or above optimum</td>
</tr>
<tr>
<td></td>
<td>130-159</td>
<td>Border line high</td>
</tr>
<tr>
<td></td>
<td>160-189</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>&gt;190</td>
<td>Very high</td>
</tr>
<tr>
<td>HDL</td>
<td>&lt;40</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>≥60</td>
<td>High</td>
</tr>
</tbody>
</table>

http://www.banglajol.info/index.php/CMOSHMCJ
Aims & Objectives
To measure HDL & LDL level in newly diagnosed untreated type 2 diabetics.

Place of Study
At BIRDEM, Dhaka during the period of January to December 2003 (1 year).

Study Population
Study was carried out on 116 (66 male & 50 female) newly diagnosed untreated type 2 diabetes patients aged 40 - 65 years and were selected randomly for study. Fifty (25 male & 25 female) non diabetic subjects aged 40 - 65 years were randomly selected as control.

MATERIALS AND METHODS
Clinical information relating to the diabetic subjects was obtained by detailed medical history and clinical examination at outpatient department of BIRDEM.

Inclusion criteria:
1) Newly detected type-II DM not receiving lipid lowering agents

Exclusion criteria:
1) Type II Diabetic who are on lipid lowering agents
2) Type II Diabetic who has other co-morbidity eg CKD, IHD etc

Collection of Blood Sample
Fasting blood sample was drawn from the antecubital vein with all aseptic precaution for the measurement of fasting serum total cholesterol, TG, HDL, LDL. Blood for plasma glucose was collected 2 hours after breakfast in all patients and controls serum glucose, TG, Total cholesterol serum high density lipoprotein were measured by auto analyzer and LDL was measured by formula:

LDL cholesterol = Total cholesterol - [(TG/5)+HDL]

RESULTS

a. Basic characteristics
Total 65 diabetic patients, 34 (52%) male and 31 (48%) female with a mean age 50.51 ± 7.85 yearsTotal 50 control subjects, 25 (50%) male & 25 (50%) female. Mean age 51.82 ± 8.13 years.

Table 1 : Comparison of anthropometric data between control & Diabetic group

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Control n = 50</th>
<th>Diabetic n = 65</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>51.82 ± 8.13</td>
<td>50.51 ± 7.85</td>
<td>.385</td>
</tr>
<tr>
<td>Weight (KG)</td>
<td>56.36 ± 5.34</td>
<td>59.16 ± 8.79</td>
<td>.045</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>159.14 ± 7.28</td>
<td>156.55 ± 7.85</td>
<td>.073</td>
</tr>
<tr>
<td>BMI</td>
<td>22.25 ± 1.5</td>
<td>24.43 ± 2.4</td>
<td>.001</td>
</tr>
</tbody>
</table>

b. Biochemical characteristics :
Two hours post prandial blood glucose level and LDL, HDL are significantly higher among the diabetic group.

Table 2 : Biochemical parameters between control and diabetic group.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Control n = 50</th>
<th>Diabetic n = 65</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood glucose (2HPP)</td>
<td>7.03 ± 0.41</td>
<td>17.12 ± 2.38</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>LDL (Fasting)</td>
<td>105.17 ± 27.09</td>
<td>164.75 ± 25.30</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>HDL (Fasting)</td>
<td>42.20 ± 7.43</td>
<td>37.82 ± 4.27</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Unpaired t test was used in all cases.

DISCUSSION
Present study showed significant difference between case (Diabetic) and control group regarding different parameters like blood glucose level, LDL and HDL. In our study showed significantly higher LDL and lower HDL.\(^b-11\). The finding of our study is consistent with the findings of them who found significantly higher concentration of LDL and low HDL (P>0.5)\(^b-13\).

CONCLUSION
Dyslipidemia is commonly found in type - 2 diabetic patients. It is a risk factor for microvascular complications. So it should be controlled effectively.

DISCLOSURE
All the authors declared no competing interest.
REFERENCES


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