A study on lipid profile in patients of diabetes mellitus type 2

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Abstract: Diabetes Mellitus is the most common metabolic disorder affecting the people worldwide. New discoveries in recent times have minimized morbidity and mortality in these patients. Diabetic ketoacidosis, vascular complications are the frequent causes of death in diabetes. Among them derangement in Lipid profile is commonly seen. Increased blood sugar and lipid profile derangement have additive cardiovascular risk. Serum lipid profile of 120 Type 2 DM patients were studied. Variation in serum lipid levels as per sex and age were studied. Mean values of the different lipid fraction TC, LDL-C, HDL-C, and TG were 227.5±22.03, 149.4±25.01, 42.1±5.68, 170.9±24.77 respectively. This study, showed that DM Type 2 have impact on lipid metabolism. Age and sex of the patients did not have much influence on serum lipids. Duration and severity of diabetes had marked influence on lipid levels. Hence, good control of diabetes would help to check the alterations in lipid level and prevent development of complication.

Key Word: Diabetes, lipid profile, vascular complication

I. Introduction
The most common metabolic disorder affecting the people worldwide is Diabetes Mellitus. Diabetes has been known since ancient times, but only in the last few decades new discoveries have provided great hopes to minimize morbidity and mortality. The diabetic ketoacidosis was major fatal complication of diabetes which has come down due to advent and proper use of insulin.

The vascular complications have remained same and they have replaced diabetic ketoacidosis as the frequent cause of death in diabetes.

Lipid profile derangement is commonly seen in diabetes. One of the most common secondary causes of lipid profile derangement is diabetes mellitus type 2. Insulin resistance and obesity combine to cause lipid profile derangement. Increased blood sugar and lipid profile derangement have additive cardiovascular risk. It is being said that patients with DM should be treated like as if they already have coronary artery disease. So identification, critical evaluation, and follow-up of serum lipid profile in Type 2 DM is so important.

II. Materials And Methods

Source of Data
A total of 120 patients attending OPD were taken in this study.

Inclusion Criteria
1. Patients with Type 2 DM of age more than 30 years.

Exclusion Criteria
Type 2 diabetes patients with concomitant diseases or condition affecting the lipid levels such as hypothyroidism, hypertension, on lipostatic drugs, and thiazides.
• A detailed history and careful physical examination was done.
• Routine blood and urine examination
• Biochemical analysis for fasting blood sugar (FBS) and postprandial blood sugar (PPBS)
• Fasting serum triglycerides (TGs)
• Total cholesterol (TC)
• High-density lipoprotein cholesterol (HDL-C), low density lipoprotein cholesterol (LDL-C).
III. Results

**TABLE NO: 1** Distribution of patients as per sex

<table>
<thead>
<tr>
<th>TOTAL PATIENTS</th>
<th>NO OF MALES</th>
<th>NO OF FEMALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>72</td>
<td>48</td>
</tr>
</tbody>
</table>

**TABLE NO: 2** DISTRIBUTION OF PATIENTS AS PER AGE

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No. of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-39 years</td>
<td>34</td>
</tr>
<tr>
<td>40-49 years</td>
<td>34</td>
</tr>
<tr>
<td>50-59 years</td>
<td>26</td>
</tr>
<tr>
<td>&gt;60 years</td>
<td>26</td>
</tr>
</tbody>
</table>

**TABLE NO: 3** MEAN LEVEL OF LIPID PROFILE

<table>
<thead>
<tr>
<th>Lipid Profile</th>
<th>Mean Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cholesterol</td>
<td>227.5±22.03</td>
</tr>
<tr>
<td>LDL Cholesterol</td>
<td>149.40±25.01</td>
</tr>
<tr>
<td>HDL Cholesterol</td>
<td>42.15±5.68</td>
</tr>
<tr>
<td>Triglyceride</td>
<td>170.90±24.77</td>
</tr>
</tbody>
</table>

IV. Discussion

Type 2 DM is one of the most common causes of dyslipidemic vascular complications. It is being found that Type 2 DM suffer from dyslipidemia in turn leading to various vascular complication (All Bright et al. 1989).
Several workers in India (Ajagnakar and Sathi et al. 1989; Vaishnava et al. 1989; Shankar et al.) have reported that in the incidence of diabetes is greater in male than females. In our study, it is observed that 60% were males 40% were females.

V. Summary & Conclusion

The serum lipid profile of 120 Type 2 DM patients was studied. The variation in serum lipid levels as per sex and age were studied. In this study 72 patients were male and 48 were female. The mean values of the different lipid fraction TC, LDL-C, HDL-C, and TG were 227.5±22.03, 149.40±25.01, 42.15±5.68, 170.90±24.77 respectively.

From this study, it was found that DM Type 2 has a real impact on lipid metabolism. Hyperlipidemia is quite common in diabetes. The age and sex of the patients did not have much influence on serum lipids. The duration of diabetes and the severity of diabetes had marked influence on lipid levels. Hence, good control of diabetes would help to check the alterations in lipid levels. Diabetic patients with complications tend to have higher levels of lipid fractions (TGs, cholesterol, and LDL-C) and lower levels of HDL-C. This suggests that there appears to be some relation between the genesis of various vascular complications (micro vascular and macro vascular), and the presence of lipid abnormality. It is difficult to find out a single factor as the cause as multiple mutually interacting factors determine the presence or development of these complications. As good control of diabetes is shown to keep the lipid levels in near normal range, it appears important to aim at critical control of DM to prevent or at least postpone the onset of various complications.

References