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Research Article

### PATTERN OF DYSLIPIDEMIAS IN THE PATIENTS SUFFERING FROM TYPE-2 DIABETES MELLITUS

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**Abstract:**

***Objectives:** The aim of this research work is to determine the dyslipidemias in the patients suffering from Typ-2 diabetes mellitus.*

***Methodology:** This is a transverse research work based on observations. This research work conducted on the patients of Type-2 diabetes who got treatment from DHQ/Allied hospital Faisalabad. Total 80 patients of diabetes from 30 to 60 year of age were the participants of this research work. The patients who were present with some other reasons as nephrotic syndrome, Type-1 diabetes & hypothyroidism were not the part of this research work.*

***Results:** Total 80 patients Type-2 DM (Diabetes Mellitus) were the part of this research work. Out of total patients, 62.0% were female and 34.0% were the male patients. The range of the age of patients was from 30 to 60 years with an average age of  $54.8 \pm 7.35$ . We noted the duration of DM < 10 years in 41.0% patients and greater than ten years in 55.0%.  $227.338 \pm 4.228$  was the random blood sugar and fasting sugar level of blood was  $151.48 \pm 2.448$  when we saw it in the all patients, random level of sugar in blood was  $208.508 \pm 5.678$  & fasting level of sugar in blood was  $141.828 \pm 3.348$  in sub-group whose illness duration was lower than ten years. In sub-group whose diabetes mellitus was greater than ten years, RBS (Random Blood Sugar) was  $255.908 \pm 10.808$  & FBS was  $169.208 \pm 6.138$ . Cholesterol level in serum was  $224.878 \pm 16.478$ , in patients with less than ten year of illness, this was  $189.718 \pm 3.718$  & this level was  $211.108 \pm 4.5$  in the patients having greater than ten year of suffering. HDL-C od serum was  $34.248 \pm 0.448$  in the patients having less than ten-year illness &  $33.55 \pm 0.4$  in the patients having greater than ten year of illness. Serum LDL-C level was  $125.8 \pm 3.96$  in the patients having less than ten year of DM &  $145.48 \pm 3.2$  in the patients with greater than ten year of Diabetes Mellitus. 41 percent male patients were addict of smoking & 56 patients were suffering from HTN (Hypertension).*

***Conclusions:** Dyslipidemia in the diabetic patients is very vital reason for morbidity. The duration of the DM has the association with the high occurrence of the dyslipidemia. Type-2 diabetes mellitus has association with the rise in the danger of chronic heart diseases. Dyslipidemia is the main cause of increase in the risk of these diseases. In this research work, we discovered increases serum cholesterol, level of LDL-C but normal patients with level of HDL-C. This is necessary for the patients to have regular check of their lipid anomalies to control the sugar as well as lipid timely.*

**Keywords:** Diabetes Mellitus, Chronic Heart Diseases, Dyslipidemia, Diabetes, Anomalies.

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**INTRODUCTION:**

Dyslipidemia is the vital cause of the Met-S (Metabolic Syndrome) in the patients suffering from DM and its characterization carried out by the hypertriglyceridemia of moderate level and lower levels of HDL-C (High Density Lipoprotein-Cholesterol). Type-2 Diabetes Mellitus has association with different dyslipidemia patterns which can lead to many complications as CHDs. After the development of the disease, there is very poor prognosis of the patients as compared to healthy persons with normal lipid levels. In the same manner, hypertriglyceridemia, less HDL-C & increased LDL-C (Low Density Lipoprotein-Cholesterol) show a great risk for the high rate of morbidity and mortality in the patients suffering from Type-2 Diabetes Mellitus. Another important factor of risk for the incidence of the CHDs is hypertriglyceridemia. Deteriorating of glycemic control worsens the abnormalities of lipid & lipoprotein and especially elevation of LDL-C in the patients of DM with poor glycemic control.

**METHODOLOGY:**

This research work was carried out in DHQ/Allied hospital Faisalabad. This is a transverse research work conducted to determine the prevalence of dyslipidemia in the patients suffering from Type-2 diabetes. Total 80 patients of Type-2 diabetes from 30 to 60 years of age were the part of this research work. We took the consent of every patient. We took the

samples of blood to know random glucose, HDL-C, triglyceride & cholesterol. After one week, we took the samples of blood for the random level of blood sugar & LDL-C. All the patients having Type-1 Diabetes Mellitus or below the age of 30 years were not the part of this research work. We studied various parameters like age, gender, duration of Diabetes Mellitus, blood sugar level and profile of lipid and then we compared the days in both groups. SPSS V.17 was in use for the statistical analysis of the collected information. Chi-square method was in use for the comparison of the data in both groups.

**RESULTS:**

The duration of the Diabetes Mellitus was lower than ten years in 41.0% patients & greater than ten years in 55.0% patients. RBS was  $229.340 \pm 6.230$  & FBS was  $153.50 \pm 4.450$  when we saw it in the studied population while RBS was  $210.510 \pm 7.680$  & FBS was  $143.830 \pm 5.350$  in patients with duration of Diabetes Mellitus lower than ten years. Among patients of DM with duration of greater than ten years, RBS was  $255.908 \pm 10.808$  & FBS was  $169.208 \pm 6.12$  and it was much significant. The level of serum cholesterol in patients with lower than ten year of illness was  $189.718 \pm 3.718$  & and in next group, it was  $211.108 \pm 4.5$  which is also significant statistically. The level of serum triglyceride in patients with Diabetes Mellitus from less than ten years was  $208.038 \pm 6.7$ .

**Table 1 : Demographics & Clinical Parameters**

Parameters		Mean $\pm$ SD
Gender	Male	50 $\pm$ 50
	Female	30 $\pm$ 30
Age	Mean	54.1 $\pm$ 7.36
DM Duration	< 10 years	41 $\pm$ 41
	> 10 years	55 $\pm$ 55
Sugar	Random	208.49 $\pm$ 5.66
	Fasting	169.19 $\pm$ 6.12

The level of serum HDL-C was  $34.248 \pm 0.448$  in patients who were suffering from illness for lower than ten years &  $33.568 \pm 0.4$  in the patients of second group but this was not much significant statistically. The level of serum LDL-C was  $125.08 \pm 3.988$  in the patients of first group of DM &  $145.48 \pm 3.2$  in second group. Total 50 patients were present with HTN. And remaining 30 patients were normotensive. 41 male

patients were addict of smoking. No female patient of this research work was smoker.

**DISCUSSION:**

This research work displayed that there was high prevalence of Type-2 Diabetes Mellitus among females (62.0%) in comparison with the males (34.0%) and average age of the patients was  $54.8 \pm 7.35$ . One other research stated that it was more

prevalent in males but the age of the subjects was comparable. The differences base on gender in the occurrence, presentation and therapy of chronic heart diseases remains a vital region of research & controversy. ASA in in the year of 1999 stated that one of the leading cause of high mortality rate among females was CHD with the purpose to compare the level of lipids among Type-2 DM displayed that the concentrations of the lipids increases with the increase of age but reached to its maximum level at the age of fifty years. This is observation that the level of plasma lipids was high in females as compared to males, that's why occurrence of CHD is high among females. Lewis recommended the prevention of this complication with the decrease of cholesterol level among females. In the same manner, King in his study stated that the CHD risk among females suffering from DM has association with status of hormones, reproduction, HDL-C & age.

Brochier gave the opinion that there can be development of coronary atherosclerosis very fast after menopause. This can be one of the reason of high occurrence of CHD, prior to the onset of the DM. So, this research work is much comparable with the other research works stated earlier. There was prevalence of HTN with DM in 56.0% patients and 41.0% patients were smokers. These mentioned factor of risk can enhance the prevalence of atherosclerosis due to the increases levels of cholesterol, less LDL-C. The habit of smoking has the ability to interrupt the metabolism of lipoprotein and can have a dangerous impact on the vessels of blood. Smoking has the ability to stimulate oxidation of particles of LDL which causes an important enhancement in the triglyceride & decrease in the HDL-C and believed that it is due to the resistance to insulin.

In this research work, level of RBS was  $227.338 \pm 4.21$  and FBS was  $153.50 \pm 45.0$  & it was much high in the patients who has the duration of illness for more than ten years. Aboola-Abu CF from the country of Nigeria discovered the similar results. He also examined that good glycemic control supported the improvement in dyslipidemia. There is observation that prevention of dyslipidemia & better glycemic control can prevent the atherosclerosis & chronic heart diseases. The findings of various research work showed that the complications related to DM are much high in the population of our country as compared to the nations of West.

### CONCLUSIONS:

Dyslipidemia in the diabetic patients in vital reason for high rate of morbidity. The long duration off the Diabetes Mellitus has association with the high

occurrence of the dyslipidemias. This is also the reason of the high risk of acquiring chronic heart diseases. This is necessary to educate the patients to have regular tests for abnormalities of lipids to control the lipid and level of blood glucose.

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