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OCCURRENCE OF METABOLIC SYNDROME AMONG PATIENTS SUFFERING FROM DIABETES MELLITUS AND ITS CARDIO-VASCULAR IMPACTS ON PATIENTS

Dr Muhammad Muneeb Arshad, Dr Muhammad Ali, Dr Aimon Riaz
Nishtar Hospital Multan

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Abstract:
Objective*: The aim of this research work is to determine the occurrence of the Met-S (Metabolic Syndrome) among patients suffering from Type-2 diabetes as well as its cardio-vascular impacts with the utilization of the instructions of World Health Organization and NCEP, a program for cholesterol education.*
Methodology*: We selected the 380 patients randomly who were suffering from Type-2 diabetes. The duration of this research work was from March 2017 to July 2018 at Nishtar Hospital Multan.*
Result: *We screened the 380 patients in this research work. The average age of the patients was 56 years. There were 53.0% (n: 250) male patients and 43.0% (n: 130) female patients. The average duration of the diabetes mellitus was about thirteen years. 44% (n: 200) patients were present with Met-S. Out of these 200 patients, 100 patients were present with the cardiovascular instances.*
Conclusion*: The in time discovery, preventive measures and treatment of the Type-2 diabetes mellitus and Met-S present a main challenge for the professionals of the health care field particularly faced by the over BMI and people with sedentary style of life.*
KEYWORDS*: Typ-2 Diabetes, Cardio-Vascular, Cholesterol, Sedentary, Metabolic, Syndrome.*

Corresponding author:
Dr. Muhammad Muneeb Arshad,
Nishtar Hospital Multan

QR code

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INTRODUCTION:

There is steady increase in the occurrence of the diabetes mellitus in Pakistan. Diabetes Mellitus is among five major reasons of death in many countries of the world. In our country Pakistan, approximately nine million people are the victims of this complication. According to the prediction of the World Health Organization, the population of 130 million peoples suffering from diabetes will rise to three hundred million in the end of the year 2030. This is equal to a rise from 2.8% to 3.0% of population of world by the year of 2011. There are many complications due to this disease of diabetes as end stage vascular problem, cardio-vascular abnormality & retinal anomalies. Therefore, it is the cause of heavy burden of the health systems of many countries of the world.

Met-S is the known as the syndrome of the resistance to insulin. Many evidences in this field have confirmed that Type-2 diabetes mellitus is the main risk for the cardio-vascular diseases particularly in males as well as females of elder age. Himsworth identified the sub-types of the insulin resistance of the disease of diabetes. Reaven performed a large research on the resistance to insulin. In the year of 1988, he stated a new term of Syndrome-X for the various diseases of cardio-vascular anomalies. There are many names of this syndrome as Met-S, syndrome of insulin resistance & deadly quartet. There are separate definitions of the Met-S syndrome according to NCEP & WHO describing the limits of glucose level, hypertension, waist girth, cholesterol & obesity level with BMI. We selected all the patients according to the standard of the WHO regarding this syndrome.

METHODOLOGY:

The sum of total 380 patients suffering from Type-2 diabetes selected randomly were the participants of this research work. We studied the patients of Met-S after their selection from total population. We selected the data of 250 males and 130 females with a range from 30 to 70 years from Nishtar Hospital Multan from March 2017 to July 2018. 200 patients were suffering from Met-S fulfilling the criteria of the WHO as level of glucose of blood plasma as 110 mg/dL; ratio of waist-hip greater than 0.9 and body mass index as 30; Serum triglycerides as 150 mg/dl and HDL cholesterol level as less than 35 mg/dL; BP as 90/140 mmHg. BMI calculation carried out according to the standard formula.

The calculation of the circumference of the waist carried out. The ration of waist to hip defined as girth of waist divided by the circumference of the hip. For the evaluation of the sugar dyslipidemia and blood, we asked the patients to keep fast for 12 to 14 hours, then we took their sample of blood. For further examination, we sent the samples of blood to the laboratory. We recorded the level of glucose of the fasting blood, HDL, LDL cholesterol and cholesterol of serum. For the evaluation of the impacts on the cardio-vascular system, we performed electrocardiograph, X-ray of chest and echocardiography of the patients suffering from Met-S.

RESULT:

We noted the occurrence of the Met-S and its associated complications cardio-vascular system among the patients suffering from Type-2 diabetes mellitus. The screening of 380 patients carried out and we diagnosed them with diabetes mellitus. The average age of the patients was 56 years. Among these 380 patients, 200 patients were suffering from Met-S. In these 44.0% patients, 48.0% patients were male and 39.0% patients were female. This complication was more dominant in male gender. We noted the obesity in 28.0% (n=146) patients, hypertension in 56.0% (n=211) patients and dyslipidemia in 34.0% (n=218) patients. All these 3 features were present in the patients suffering from type-2 diabetes mellitus.

Table-I: Prevalence Of Metabolic Syndrome And Its Different Components In Type-2 Diabetic Patients

n = 380	Male n=250 (53%)		Female n=130 (43%)		Total	
	No	Percent	No	Percent	No	Percent
Metabolic Syndrome	160.0	48.00	40.0	39.00	200.0	44.00
Obesity	46.0	24.00	100.0	33.00	146.0	28.00
Hypertension	151.0	65.00	60.0	45.00	211.0	56.00
Dyslipidemia	118.0	35.00	100.0	33.00	218.0	34.00

The average waist-hip ratio was 0.738, Waist-girth as 100.0 & 90.0 cm for male and female patients correspondingly and body mass index was present as 32.0. The average BP was 96/160. The average fasting sugar of blood was 140 mg/dl. The average triglycerides of serum were 210 mg/dl, the mean level of LDL was 169 mg/dl & mean HDL was 52 mg/dl. In this research work, incidence of the cardio-vascular disease was 44.0% in which 82 were male patients and 57 were female patients. In these patients, patients with the angina pectoris were 82 (25.0%), patients with acute myocardial infarction were 32 (9.0%) and patients with congestive cardiac failure were 23 (6.0%). The rise in the girth of abdomen and obesity with raised LDL level of blood and hypertension are life threatening and it can cause the cardio-vascular complications.

Table-II: Statistical Data Of Different Factors Of Metabolic Syndrome

AGE (mean) in years	56.0
Systolic BP	158.0
Diastolic BP	94.0
Body Mass Index	32.0
Waist Girth (mean) (Male) in cm	100.0
Waist Girth (mean) (Female) in cm	90.0
Waist-hip ratio (mean)	0.7
Serum Triglycerides mg% (mean) mg/dl	208.0
Serum Cholesterol mg% (mean) mg/dl	262.0
LDL (mean) mg/dl	167.0
HDL mg% (mean) mg/dl	50.0
Fasting Blood Sugar mg% (mean) mg/dl	138.0

DISCUSSION:

There is a rapid increase in the Type-2 diabetes mellitus in our country which is serious fatal disease. There are also chances of its rapid increase in near future. Met-S is the cause of many serious complications. Majority of the complications of diabetes exist in association with hypertension. Cardio-vascular problems are responsible for 73.0% morbidity and mortality in the patients suffering from Type-2 diabetes mellitus. But in this study, this percentage was only 44.0%. The incidence of the hypertension in the patients of his research work is 56.0%. This is the most important reason of Met-S among patients of diabetes mellitus. Disabilities and death are main colleagues of diabetes mellitus in association with the stroke. Among various factors, hypertension is the most serious risk factor in this research work followed by the obesity and hyperkinemia.

Hypertension is two time greater in the patients of Met-S as compared to other patients. The treatment of the HYPERTENSION, obesity & dyslipidemia is necessary to reduce the high rate of morbidity as well as mortality. In this current research work, there is a trend of increasing obesity as displayed in KUOPIO the risk factor of heart disease. Among total 200 patients suffering from Met-S, cardio-vascular diseases were present in 44.0%. A research work discovers a threatening condition conducted by BOTANICA. This current research work displays a threatening condition about the Met-S and its related rates of morbidity as well as mortality. The preventive program against diabetes of USA proposes that even a modest style of life intervention can have a serious impact in the decrease of the danger of diabetes mellitus in controlling the intolerance to glucose of blood. Increase physical activity, loss of body weight and balanced diet affects the occurrence of the Met-S in very short duration of time. Patients busy in routine exercises activities are present with low risk of the developing the Type-2 diabetes. Different research work conducted on random populations show that the intervention of the lifestyle has the ability to prevent the occurrence of Met-S.

CONCLUSION:

There is an emergence of the Typ-2 diabetes in our country, Pakistan as an epidemic. There is need to control this complication for the patients who are at early stage or the persons who are at risk of this disease. There is need to leave the sedentary style of

life as well as routine of the daily physical activities. There should be an encouragement to stop the habit of cigarette smoking and to take a healthy diet with less amount of fatty acids. The propagation of this disease can be control with the use of the social media as newspapers, TV, as well as professionals of the health care fields as doctors and physicians.

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