

Awareness About Diabetes in Diabetic Patients and General Population

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ABSTRACT

Nowadays, Diabetes is a growing concern for researchers worldwide. It is a metabolic disorder characterized by high levels of Glucose and high risk of long term adverse complications. We have performed a survey based analysis in two different health groups- Diabetic and Non Diabetic to evaluate awareness amongst them. The study would help provide general awareness to both populations about the disease, its causes, treatment and complications. Thus, providing an opportunity to decrease burden at all levels of Health Care System. Research Methodology was survey based requiring acquisition of relevant data from both study groups. Therefore, a general awareness questionnaire was designed, distributed and evaluated for the basic knowledge about the disease and its complications between both – Diabetic and Non Diabetic personnel to improve self-awareness about the disease. The results show non-significant difference in knowledge of the two groups about Diabetes. The Diabetic patients were more generally aware about the disease, its types and symptoms as compared to non-diabetic group which is evident from the p value of 0.003, 0.001 and 0.006 respectively. However, Knowledge about risk factors, drug and dietary control and complications presented less significant output.

Keywords: *Diabetes, Awareness, Diabetic and Non Diabetic*

INTRODUCTION

Diabetes is one of the most common non communicable disease in the world with significantly higher rate of mortality and morbidity[1]. In Pakistan also the number is rising day by day. According to International Diabetic Federation there were over 7 million cases of Diabetes in Pakistan in 2015[2]. Awareness of the disease and its causes can play a vital role in the disease management and prevention of diabetes among individuals at risk and also contribute to decrease acute and chronic health complications due to the disease.

Diabetes commonly referred as Diabetes Mellitus is a metabolic disorder characterized

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by Hyper glycemia. In addition it also causes disturbances in metabolism of carbohydrates, proteins and fat. The reason behind may be defects in Insulin secretion, Insulin resistance, or both.[3, 4]

Classification of Diabetes

Diabetes was broadly classified by WHO into two clinical classes depending upon the basis of clinical stages of Diabetes Mellitus as well as etiological classification.

The first distinct class is Type 1 Diabetes Mellitus. It was formerly termed as Juvenile Diabetes Mellitus since it can occur at any age. In such patients we find complete deficiency of Insulin secretion.

The other classes Type 2 Diabetes Mellitus whose results from a state of being resistant to Insulin action and insufficient response to

Insulin secretion.

A third subclass of diabetes mellitus also exists which is related with certain other conditions and syndromes. This subclass has been divided according to the known or suspected etiologic relationships. These may include genetic defects of beta cell function, genetic defects in Insulin action, Drug or chemical induced and infections. Some uncommon forms may also exist like immune mediated diabetes.

In addition, we have a class called gestational diabetes. It is restricted to women in whom glucose intolerance develops or is discovered during pregnancy. Women are tested for Diabetes during pregnancy on the basis of their history and risk factors.

Moreover, we have individuals with plasma glucose levels intermediate between those considered normal and those considered diabetic. Such patients are termed to have impaired glucose tolerance. This class is a hyperglycaemic disorder rather than diabetes itself.[3]

Causes of Diabetes

Type 1 Diabetes Mellitus is caused by self-destruction of the B cells of pancreas. This results in Insulin deficiency and other abnormalities resulting due to Insulin resistance. The destruction is genetically susceptible and may relate to undefined environmental factors. Such patients require Insulin for their survival and are highly prone to ketoacidosis.

In some patients the cell destruction can be detected and sub categorized on the antibody type, however it may remain undetected and termed idiopathic.

On the other hand, In Type 2 Diabetes patients do not suffer from Insulin deficiency entirely. These patients may have normal Insulin secretion. Such patients are resistant to the action of Insulin. They do not necessarily need Insulin to survive. Although various factors

contribute to this type including obesity which causes aggravation of Insulin resistance but specific etiological factors are unknown[5]. The other abnormalities of carbohydrate, fat and protein metabolism occur due to deficient action of insulin.

Symptoms of Diabetes

Frequent urination (Polyuria), excessive thirst (Polydipsia), weight loss, lack of interest and concentration, blurred vision, vomiting and stomach pain are among some of the most common symptoms of diabetes.

Diagnostic Tests

Measurement of blood glucose level has so far been the most common diagnostic test for Diabetes. Due to the fact that Type 1 Diabetes has more significant clinical onset as compared to type 2 Diabetes more specific blood glucose tests are not required for diagnosis whereas due to slow onset of glucose level in Type 2 diabetes we need specified glucose levels examination for differentiation among the diabetic and non-diabetic group. The tests include the following:

- HbA1c, or Glycohaemoglobin Test
 - FPG or Fasting Plasma Glucose Test
 - OGTT or Oral Glucose Tolerance Test
- HbA1c Test:

It is the standardized test used for diagnosis of Type 2 Diabetes and Prediabetes but is not recommended for Type 1 Diabetes. Patients find it convenient as it does not require the condition of fasting as compared to the traditional method. A normal A1C level is below 5.7 percent. However, they may still be at risk for diabetes, depending on the presence of other risk factors.

An A1C of 5.7 to 6.4 percent indicates stage of Prediabetes or at a very high risk of developing diabetes with percent above 6.0 and a level of 6.5 percent or above means a person has diabetes.

Fasting Plasma Glucose Test

It has been the most common test used

for diagnosing diabetes in both diabetes and prediabetic conditions. It is also more convenient than the OGTT and less expensive. The FPG test measures blood glucose level and is most reliable when given in the morning and the person needs to fast at least 8 hrs before the test.

People with 100 to 125 mg/dL of fasting blood glucose have impaired fasting glucose (IFG), or prediabetes. A level of 126 mg/dL or above is confirmed by repeating the test on another day. It means a person has diabetes.

Oral Glucose Tolerance Test

OGTT can be helpful in diagnosis of diabetes, prediabetes, and gestational diabetes but still it is an inconvenient method despite being more sensitive than FPG. This test can be used for both diabetes and prediabetes condition. The blood glucose level is measure after fasting for at least 8 hours and 2 hours after the person drinks a liquid containing 75 grams of glucose dissolved in water. Atfirst, Glucose level is checked after 2 hours, if it is between 140 and 199 mg/dL, the person suffers from a type of prediabetes called impaired glucose tolerance (IGT). On the other hand, a person can be confirmed for Diabetes by a second test, which is a 2-hour glucose level of 200 mg/dL or above.[6]

Risk Factors of Diabetes

There is a combination of genetic and environmental factors contributing to risk factors of Diabetes. In type 2, for Instance the risk of developing diabetes increases with increasing age, obesity and diminished physical activity.

Diabetic Complications

Various complications may arise from diabetes disregarding its type, including macro vascular disease of the blood vessels leading to stroke, myocardial Infarction and limb amputations. With the passage of time microvascular complications also arise in retina leading to blindness, nerve degeneration and kidney

failure [7].

Researchers suggest that generation of reactive oxygen species referred as oxidative stress, is an important factor responsible for Diabetic complications. Firstly, it affects bio chemical pathways associated with hyper glycemia increase the production of free radicals. Moreover, production of superoxide anions also increases due to exposure of endothelial cells to high glucose quantity. This leads to vasodilator function of Nitric oxide which has the responsibility to maintain normal vasculature. Antioxidants at this point cause reversal in normal phenomenon of endothelial dependant relaxation and delayed cell replication. Thus, the micro vascular and macro vascular complications can both be related to antioxidant action at endogenous level [8, 9].Ketoacidosis is another form diabetics a severe form of Diabetic complication with a very high mortality rate[10].Ketoacidosis is infrequent in type 2 of Diabetes as compared to type 1. Hypoglycaemia is another major Diabetic complication more frequently found in elderly patients with Type 2 diabetes[11].

Diabetes Awareness

Diabetes is one of the most common non communicable global disease and according to International Diabetes Federation Diabetes is the fourth leading cause of death in the world. Hence, it is in great need to educate the people on the early warnings of Diabetes. Awareness about the disease will not only prevent and help in management of the disease but also would reduce health burden at all levels of Health Care System.

In this regards, it is important to initiate self-monitoring of Diabetes which includes regular blood sugar and Insulin level checks which can help in early detection of Diabetes. Similarly, Proper Diet Management can help achieve good health through adequate nutrition. Obesity which is one of the major causes of Diabetes

can be prevented and managed through a healthy diet plan and exercises. Achieving good health through adequate nutrition can prove out to be a major phenomenon for patients with risk factor for Diabetes. No matter to the type of diabetes one has self-management plans as per need of a patient according to his goal, priorities and life style can be beneficial in his treatment. Studies have also shown that depression can cause poor glycaemic control as well. Therefore appropriate management of depression or diabetes related distress can also help improve overall health of Diabetic patients[12, 13].

Thus, awareness about overall disease development can help prevent permanent disabilities among patients, decrease health costs and increase life expectancy and productivity.

METHODOLOGY

It is a cross sectional survey based study comprising of N = 40 (consisting of two groups of population-diabetic and non-diabetic). Their ages ranged from 25 to 50 years. A diabetic awareness questionnaire was provided to each member of both groups. The questions were asked by a pharmacist and filled out by them on the basis of their knowledge. The number of patients selected were 40 which included both male and female.

The questionnaire contained questions divided into six portions: General Information about the disease, causes, symptoms, diagnostic tests and risk factors associated with disease as well as the major diabetic complications. The answers were analyzed statistically through the use of SPSS software.

RESULTS

It is evident from the performed survey that Diabetic patients had comparatively more

knowledge about the overall issues of the disease as compared to non-diabetic population(Fig 1) Individual knowledge related to each category of questionnaire is represented in graphical form in Fig 2. The Diabetic and Non Diabetic population were asked general questions about Diabetes initially. They were asked if they knew Diabetes was a condition of High Blood sugar and if it was a curable disease. Then, they were asked about factors which could cause diabetes. The results show a non-significant difference with p value of 0.113, among the two groups regarding the general facts.

This section was followed by information about different types of Diabetes which included Type 1, Type 2 Gestational and Pre Diabetic condition. In this regards, p value of 0.003 presents a considerable difference in awareness between Diabetic and non-diabetic population.

Furthermore on enquiry about symptoms of Diabetes, the p value of 0.001 also indicates marked distinction in both categories. Similarly, an insight of risk factors: Inherited and Obesity, proved to be insignificant with p value of 0.843.

In addition, both group seemed to be equally aware about the diabetic drug and dietary control. They knew about the use of Oral Hypoglycaemic in Type 2 and Insulin in Type 1 diabetes. They understand the importance of proper diet chart and exercise for good control on sugar level. This was evident from the p value of 0.091 and 0.028 respectively. In contrast, diabetic patients comprehended more about complications as compared to non-diabetic people.

Overall, knowledge about types and symptoms came up with significant p values as compared to general awareness about facts, risk factors, diagnostic tests, drug and dietary control and complications of the disease.

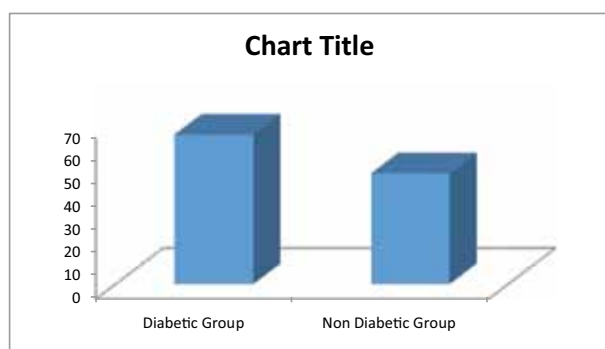


Fig. 1: Diabetes group and non-group

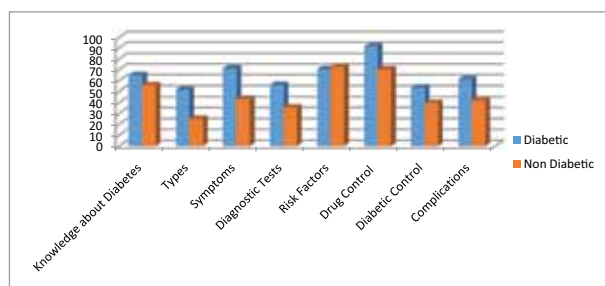


Fig. 1: Types, Symptoms, control, empheation of diabetes.

DISCUSSION

Although the results do not show significant difference in knowledge among the two groups, the mean values present some areas of sound difference for discussion. First, both groups presented fair knowledge about the general facts about the disease. Secondly, thenon-diabetic population seemed to be unfamiliar with the types of diabetes-Type 2 diabetes and Glucose Intolerance. Also they have little knowledge about diagnostic tests which could help in early diagnosis of the disease like Type 2 diabetes which is left undiagnosed for several years. Thirdly, despite fair knowledge about the associated risk factors of family inheritance and obesity, they have little education regarding the dietary control methods and exercise to prevent the onset of disease in non-diseased group who have high probability of developing diabetes in future. It is in great need to have good guidance program on dietary management for both groups. The Diabetic patients can have a

better control on their sugar levels with proper diet management chart to be followed thus preventing further complications.

CONCLUSION

It can be concluded from the performed survey that Diabetic patients had comparatively more knowledge about the overall issues of the disease as compared to non-diabetic population (graph 1)

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