Inadequate Glycemic Control - Failure of Counseling or Compliance?

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A B S T R A C T

Objectives: To find out the level of counseling provided by physician to diabetic patients with HbA1c > 6.5% and to determine the patient's compliance regarding diabetes and its control.

Material & Methods: In this cross-sectional study type 2 diabetic patients were inducted using convenient sampling technique. A structured questionnaire with closed ended questions was used. Interviews were conducted by researchers after obtaining written informed consent. SPSS version 20 was used for analysis. Chi-square test was applied to find association between variables.

Result: Out of 155 participants, 141 (91%) patients knew that they have high glucose level but they have no information regarding reason of these elevated levels. Counselling regarding, pharmacological therapy, dietary changes, importance of exercise and about regular foot examination was provided to 92.3%, 86.5%, 61.9% and 19.4% patients respectively. Patients compliance was highest to pharmacological treatment (67.7%) followed by regular visits and physical exercise (51.6% and 51%) respectively. However, 49.7% (n=77) of the participants do not check their blood glucose levels at all. There was statistically strong association between level of counseling with compliance of the participants regarding both pharmacological treatment (p=0.03) and exercise (p<0.001).

Conclusion: Counseling played a pivotal role in compliance of treatment. In this study counseling was good about treatment regimens as compared to lifestyle changes. Therefore, a large number of the participants showed good compliance for treatment. Patient tailored approach should be adopted by physicians dealing with diabetes, with more emphasis to introduce lifestyle changes.

Keywords: Diabetes Mellitus, Glycemic control, HbA1c..

Introduction

Diabetes Mellitus is prevalent throughout the world with a rising trend among developing countries. According to WHO, 9% of the total world population was diabetic in 2014.[1] Pakistan stands as the 7th largest country in terms of diabetes burden with 10% of its population having the disease out of which 66% have highly deranged HbA1c value.[2,3] According to Pakistan National Diabetes Survey 13.9% adult population (>25 years) of Sindh has type 2 diabetes mellitus.[4] About 8.6% Baluchi population has Diabetes Mellitus type 2.[5] In NWFP 11.6% adult women and 9.2% adult men have type 2 Diabetes Mellitus.[6]

Proper control of blood sugar level is needed in order to avoid long term complications and morbidity associated with diabetes mellitus. Physician patient interaction is an

important element for improvement of overall health. Especially in uncontrolled diabetes, this interactive approach is proved to be more beneficial. It is a frequent observation that patient tailored approach is not considered by general practitioners while prescribing drugs or suggesting lifestyle changes. Education regarding Diabetes mellitus including proper instructions related to use of anti-diabetic drugs, lifestyle modification like dietary habits, maintenance of exercise and self-monitoring of blood sugar levels, is a complex health intervention which is a cornerstone for improving glycemic control.[7] The compliance of the patient is equally important in this regard. The management of Diabetes is a life-long measure and it is difficult to carry out and maintain lifestyle changes. High levels of motivation and support is needed for the patient to be compliant. Above stated voids result in poor glycemic control and highly deranged values of glycosylated hemoglobin (HbA1c). Aim of the study was to find out the level of counseling provided by physicians to Diabetic patients, their compliance regarding Diabetes and control.

Materials and Methods

A cross sectional study was conducted among patients of type 2 Diabetes mellitus with deranged HbA1c (value >6.5%) visiting department of Pathology, Pakistan Institute of Medical Sciences (PIMS), Islamabad from June-August 2016. Permission from the hospital ethical committee was taken. Participants were selected by convenient sampling technique with a sample size of 155, based on Confidence level of 95%, Confidence interval of 5 and population size of 260 (as calculated by a pilot survey).

The Questionnaires were filled by researchers after obtaining written informed consent from the participants. Data including variables such as age, gender, BMI, education, diabetes duration, type of treatment offered, status of late complications, and current HbA1c levels was recorded. Counseling by the physician and compliance of the participant regarding Diabetes and its management was assessed using a closed ended questionnaire. The collected data was analyzed using SPSS version 20 and presented as tables and graphs. Chi square test was used to find associations between variables.

Results

Mean age of participants was 57.18 ±10.07. Number of male participants was more than female participants. Majority of the participants had education less than matriculation. Most of the participants were in the category of overweight. Duration of disease for most of the participants was between 5-10 years. HbA1c levels of majority of the participants were between 7-10% (Table 1). Treatment offered to a vast majority was pharmacological only (n=89, 57.4%). Late complications had occurred in 104 (67.1%) participants, hypertension was the comorbid (n=82, 52.9%).

Table 1: Demographic characteristics of participants (n=155)

Variables	Frequency (n)	Percentage (%)
Age (Years)		
20-40	15	10
40-60	81	52
>60	59	38
Gender distribution		
Male	82	53
Female	73	47
Education		
Matric & above	69	45
Below matric	86	55
BMI		
Normal	37	24
Overweight	118	76
Duration of disease		
<10 years	115	74
>10 years	40	26
HbA1c (%)		
<6.5	3	2
6.5-7	38	25
7.1-10	61	39
>10	53	34
Late complications		
Present	104	67

Regarding awareness of patients one hundred and forty one (91%) participants identified that they have high glucose levels but only 10 (6.5%) participants knew exactly that it is due to Insulin resistance or deficiency. Knowledge about late complications of the disease was good as 125 (80.6%) participants knew about at least one complication and 67 (43.2%) participants could identify most of the complications.

As far as counselling was concerned, more counseling was performed for pharmacological therapy (92.3%). Large number of participants were counseled about dietary changes (86.5%) and importance of exercise (61.9%) in the treatment of diabetes but counseling regarding regular foot examination was conducted to only 19.4% participants. Even less information (45.2%) was provided about glucometer and the importance of its regular use (Figure 1).
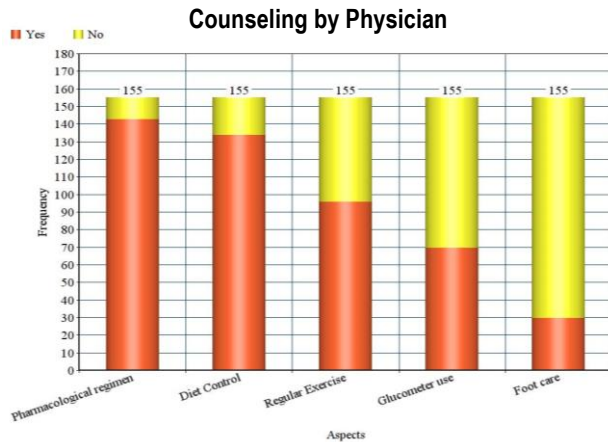

Figure 1: Counseling provided by physician to patients of type 2 diabetes mellitus (n=155)

Patient's compliance to pharmacological treatment was good, as 67.7% participants followed their medications as prescribed. Regular follow up and physical exercise was maintained by 51.6% and 51% patients respectively. However 49.7% of the participants do not check their blood glucose levels at all (Table 2).

Table 2: Frequency of checking blood sugar level in patients of type 2 diabetes mellitus (n=155)

Sugar checked	Frequency (n)	Percentage (%)
Everyday	35	22.6
Only when you think sugar level is high	43	27.7
Do not check	77	49.7

There was strong association between level of counseling with compliance of the participants regarding both pharmacological treatment (p=0.03) and exercise (p<0.001). Patients having more knowledge of disease showed significantly low HbA1c levels (p<0.001). Education had also a significant association with compliance to follow-up (p<0.001). Age group of 40-60 years and male gender had a significant association with compliance to pharmacological management (p=0.001) and physical activity (p<0.001) respectively. There was more compliance of participants with duration of disease less than 5 years (p<0.001).

Discussion

In our study it was observed that participants who had more knowledge regarding diabetes were more compliant to follow the treatment, both in the form of pharmacological management as well as lifestyle modification. In conformity to the findings of the current study, a work was done by Girish et al in India.[8] Study reported that good knowledge regarding the disease was directly related to participant's compliance in both pharmacological and non-pharmacological management options. Study was conducted at a rural hospital of Maharashtra. Most of the participants had chronic diabetes but their knowledge regarding occurrence of disease and self-care was very poor. That study suggested that arrangement of Seminars, counseling sessions and workshops for the patients of diabetes mellitus can be helpful in increasing disease awareness and improving patient's compliance. However, another study conducted at china revealed no association between knowledge about diabetes and compliance.[9] Author study reported that there is a gap between information provided to the patients and practical demonstration performed by them. Majority of the patients gave good response on question asked about factual knowledge of diabetes. But they failed to apply the provided knowledge in their real life for a quality time. This study suggested that only provision of knowledge is not sufficient, different strategies should to be adopted to improve patient's attitudes, beliefs and learning abilities.

In the current study 80.6% participants knew about at least one of the complications of diabetes, but only 19.4% knew about the importance of regular foot examination. In Egypt, a study was conducted at outpatient clinics of three family health centers. Among 750 respondents, 0.5% knew about compromised immunity in diabetes, 61.5% were aware of stroke, cardiac, renal and retinal complications while 77.5% of patients recognized the importance of diabetic foot protection and care.[10]

Comparable results were obtained in a study conducted at South India. Study reported that patients have relatively good knowledge about risk factors of diabetes and its complications. About 79.3% individuals knew about at least one complication of diabetes mellitus including eye problems, renal diseases, heart diseases or neuropathies. About 54% of patients were aware of foot care.[11]

It is observed in the current study that apart from counseling, other variables may contribute to compliance including education, age group, gender and duration of disease. Well educated participants, age group between 40-60 years, male gender and shorter duration of disease resulted in more compliance regarding treatment of diabetes. These findings are supported by Iswarya et al in South India.[11] They reported that education has significant positive impact on compliance of patients. Besides this, patients having less than four years of disease showed non-significant but more compliance towards disease. Similar results were also reported in South Wales by Ruth et al which stated that males performed more physical exercise than females.[12] They also concluded that females have more inclination to visit dieticians, and old age group is less compliant with respect to dietary modifications and glucose monitoring. These associations are not proven significant in our study.

Conclusion

It was found that Counseling plays a pivotal role in compliance to treatment. Other factors contributing to increased compliance included higher education status and male gender. As more counseling was provided regarding pharmacologic management, hence had better compliance as compare to lifestyle modifications.

Patient tailored approach should be adopted by physicians, with more emphasis on providing necessary motivation to introduce lifestyle changes. A detailed diet and exercise plan along with explanation regarding pharmacologic management should be provided to every patient at the time of diagnosis of diabetes after a thorough interview.

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