جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة بابل
كلية الطب

Community medicine

Medication adherence in diabetes mellitus and self-management practice in type 2 D.M in Babylon governorate

Stage 4

مقدمة من قبل

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Abstract

Background: Type-2 diabetes mellitus and its complication are becoming more prevalent in Babylon. Evidence abound that the most important predictor of reduction of morbidity and mortality due to diabetes complication is the level of glycemic control achieved

Objective: The aim is to assess adherence to anti diabetic drug therapy and self management practice among type-2 diabetic patient in Babylon

Methods: A cross-sectional study was conducted among Babylon people from February 2024 to March 2024. Participants completed a Google Form questionnaire containing questions about age, gender,Monthly income,Academic achievement,When did diabetes start?,Sugar level readings,Other chronic diseases?,Types of diabetes medications used ,The extent of adherence to the medication,Reason for irregular taking of medication ,Reason for non-adherence to medication,measuring blood sugar level regularly or not?,A total of 158 Babylon people either sex were enrolled in the study. 77 females and 81 males participated in the research project. Data analysis was performed using descriptive statistics and logistic regression.

Results: Oral hypoglycemic agent were prescribed for 103(65.2%) of the patient while insulin alone in 42(26.6%) while insulin and oral hypoglycemic agent was prescribed in 13(8.2%). Only 41.8% of the patient had adequate glycemic control. The main external factors for non adherence were Multiple drug therapy (23.6%) followed by perceived side effect of drug 19.1%. Only 6.5% patient who missed their medications disclosed to physician during consultation. The knowledge and practice of critical component of diabetes self management behavior were generally low among the patient studied.

Conclusion: Majority of the patient with type 2 diabetes in Babylon are managed by OHA monotherapy mainly glybenclamide and metformine. While the current prescribing strategy do not achieve glycemic control on majority of the patient. This is due to poor adherence with the prescribed drug regimen and poor knowledge and practice of successful self-management.

Introduction

Diabetes mellitus comprise of a group of common metabolic disorder that share the phenotype of hyperglycemia. Type-2 DM is a heterogeneous group of disorders characterized by variable degree of insulin resistance, impaired insulin secretion and increased glucose production [1].

The risk of death from cardio vascular disease is approximately three-fold for patient with type-2 diabetes; and the risk of death from all cases is increased by 75% compared to patient without diabetes [2].

Evidence abounds that the most important predictor of reduction of morbidity and mortality due to diabetes complications is the level of glycemic control achieved [3][4][5][6]. This has encouraged aggressive treatment of patients with the goal of achieving blood glucose level as close to normal as possible. Indeed, there has been a shift from monotherapy with OHAs to combination therapy with at least two agents often from different classes, with or without insulin; in an attempt to achieve better glycemic control, reduce incidences of acute/long term complications and improve patient survival [5][7][8].

However, achievement of optimal glycemic control, which reduces the likelihood of diabetic complications and risk of death, is predicated on rational use of available anti-diabetic regimen, good adherence to prescribed treatments and successful self-management by patients [9][10].

Worldwide, adherence rate for medication for diabetes vary between 36 and 93%. Adherence to prescribed medication is crucial to reach metabolic control as non-adherence with blood glucose lowering or lipid lowering drug is associated with higher HbAIc and cholesterol, levels respectively. The study conducted in Netherland on refill adherence and poly pharmacy among patients with type-2 diabetes in general practice show that mean adherence with oral glucose lowering drugs is between 61 and 85%. According to this study it has become apparent an increase in the number of co-medications tends to decrease the adherence of patient with type-2 diabetes to their treatment regiments [11]. The form shows that adherence to anti diabetic drug therapy and self-management practice among type- 2 diabetics conducted in Babylon showed that about two third of patients are not adherent. Adherence to antidiabetic agents was

found to be positively associated with a decrease in HbA1c. For each 10% increase in adherence, HbA1c [13][14] decreased significantly by 0.14 to 0.16%. Nonadherence to medications among diabetic patients resulted in poor glycemic control and hence increased risk of developing chronic complications as well as increased hospitalization and mortality [15]. Accurate assessment of medication adherence is necessary for effective management of diabetes. However, there is no gold standard for such assessment although various methods have been reported in the literature [17][18].

Poor adherence to treatment of chronic disease is worldwide problem of striking magnitude. Recently, the world health organization stated that only 50% of patient diagnosed with chronic illness were fully compliant with their treatment regimen, in developing country the rate is even lower. It is undeniable that many patients' experiences difficulty in following treatment recommendations [2].

The status of patient adherence to anti diabetic therapy and self-management practice was not yet been known in Babylon. Therefore, the purpose of this study is to identify patient, medication and environmental factors associated with non-adherence to ant

diabetic drug and self-management practice.

Methods

A cross-sectional study was conducted among Babylon people from February 2024 to March 2024.

Participants were recruited from different iraqi governmental and private departments, in addition to some universities and institutes like [Babylon Unvirsity College of Medicine, Hamurabi Medical College, university of baghdad college of medicine] were invited to complete a Google Form questionnaire designed to gather information on various demographic factors, lifestyle habits, and eye-related parameters. Participants were assured of the confidentiality of their responses, and participation was voluntary. Informed consent was obtained from all participants prior to completing the questionnaire.

Data analysis was performed using descriptive statistics to summarize the demographic characteristics and prevalence of type 2 DM among the participants. Logistic regression analysis was conducted to identify significant risk factors associated with type 2 DM, taking into account various demographic and lifestyle

variables collected through the questionnaire.

Result

Patient form Review A total of 157 case notes of patient with type-2 diabetes were included. The majority 51.3% were males and 48.7% were females. The mean age was 48.3 year (SD =11.8). The most frequent co-morbidity was hypertension (28.5%) followed by obesity (15.2%), coronary heart disease (5.1%), and other disease such as TB, anemia, osteoarthritis, asthma and hyperthyroidism with individual frequency of less than 3% all constituted 13.62% of the total co-morbid disease, Others who do not have any other disease was (40.5%).

Oral hypoglycemic agent were prescribed for 103 (62.2%) of patients while insulin & OHA was prescribed in 42 (26.6%) of the patient. about 95(60.1%) were adhered to therapy while 63(39.9%) have not adhered to therapy. Most people measure their blood glucose level 94(59.5) while the minority 64(40.5) were not. 43(27.2%) have not complications,35(22.2%) have renal complications,27(17.1%) have foot ulcer,29(18.4%) have eye problems,

while 24(15.1%) have other complications like (Excessive urine, Idleness,headache,fatigue,malaise and others) as showen in table 1,2 and 3.

(Table 1) Co-morbidities and Pattern of anti-diabetic drug prescribing among patients with type 2 diabetes in IRAQ.

Characteristics	Number (%)
Co-morbidities	
Hypertension	46 (29.3)
Obesity	24 (15.3)
Chronic renal failure	2 (1.3)
Ischemic heart failure	9(5.7)
Other	7 (4.5)
No co morbidities	69 (43.9)
Anti-diabetics	
Oral hypoglycemic agent (OHA)	102(64.9)
Insulin	42 (26.8)
Insulin + OHA	13(8.3)

(Table 2) Socio demography characteristic of type-2 diabetic patient:

Socio demography characteristics	Characteristic	Number (%)
Sex	Male	81 (51.6)
	Female	76 (48.4)

Age (in year)	< 30	55 (35.03)
	30 – 40	14 (8.92)
	> 40	88 (56.05)
Level of education	Illiterate	6 (3.82)
	Primary school	17 (10.82)
	Secondary school	30 (19.10)
	College	102 (64.96)
	Higher	2 (1.3)
Monthly income (in Iraqi Dinar)	None	8 (5.1)
	< 500	32 (20.38)
	500- 1,000,000	58 (36.94)
	>1,000,000	59 (37.58)
Diabetes duration (in year)	1-5	56 (35.67)
	5-10	37 (23.57)
	>10	64 (40.76)

Table 3

Characteristics	Number (%)
Pattern of drug use	
Never missed	95 (60.5)
Missed daily dose some times	48(30.6)
Missed daily dose frequently	14(8.9)
Reason of missing dose	
Forget fullness	56 (35.7)
Decision to omit	14(8.9)
Being busy	35(22.3)
Others	52 (33.1)
Factor of non-adherence	
Side effect of drug	30(19.1)
Multiple drug therapy	37(23.6)
Inefficacy of drug	11(7)
Easy inaccessibilityOthers	11(7)
	68(43.3)
Factor of non-disclosure	
Lack of privacy	10 (6.4)
Short consultation time	48(30.6)
Unfriendly relation with health professional	38(24.2)
Other	61(38.8)
Measure taken by patients when having Side effects	
No measure taken	46 (29.3)
Omit dose sometimes	24 (15.3)
Inform to health professional	87 (55.4)
Type of DMR	
Bed time	12 (7.6)
Mealtime	101(64.3)
Other	44 (28.02)
Knowledge of complications due to poor glycemic control	

Blindness	33(21)
Foot ulcer	27(17.2)
Kidney problem	35(22.3)
Other	62 (39.5)
Regular home blood glucose measurement	
Yes	94 (59.9)
No	63(40.1)

Discussion

Presently, there is no single measure accepted as the gold standard to measure medication adherence. Because all commonly employed methods has drawbacks. Patient interviews while straight forward and inexpensive are clearly limiter by their subjective nature. Pill counts are frequently utilized, inexpensive, and can proved information about the number of pills taken. However, it is difficult to determine actual medication consumption, and patients can intentionally or unintentionally manipulate this measure. Medication refill records provide unobtrusive information regarding refills histories and can be valuable in determining gaps in therapy but this method, similar to pill counts and electronic monitors indirect and cannot confirm actual medication consumption [19].

Hypertension (28.5%) and obesity (15.2%) as the most frequent co-morbidities among the patients studied. It is consistent with the established theory of metabolic syndrome, which is strongly associated with cerebrovascular disease in type- 2 diabetes [20][21]. This is in agreement with several studies [22].The majority of the patients were on mono therapy mainly with either glibenclamide (74.3%) or metformin (25.7%) which is not consistent with recommended intensive control of blood glucose level[8,23].

The study showed that only 41.8% of the patients had adequate glycemic control and it is consistent with other studies (10) who reported adequate glycemic control in 43.8% of type -2 diabetic patients. HbA1c test was not used to monitor or assess glycemic control in any of the patient, only FPG level is used to assess and monitor glycemic control. However, HbAIc is the established gold standard. The American diabetes association position statements with the standard of diabetic care recommend that, in patient with glycemic control, at least two HbA1c test be done per year, While in patients with poor glycemic control HbA1c test should be done quarterly per year[24] and this study finding

suggest that monitoring of glycemic control in study site should be improved.

Our findings, therefore, suggest that monitoring of glycemic control among Babylon diabetics may be less than optimal and this may be a probable contributory factor to late detection of patients at risk of complications and death from poorly controlled type-2 diabetes.

The knowledge and practice of basic components of diabetes self management practices were generally low among the patient studied. However, it was significantly higher among patients who were never missed their medication and those that have excellent and very good adherence to their prescribed anti diabetic medications. These findings indeed underscore the critical role played by patient awareness and practice of diabetes self management behaviors in improving adherence to drug therapy, ensuring achievement of adequate glycemic control and minimizing the likelihood of diabetic complication.

Adherence to prescribed anti diabetic medications is crucial to reach metabolic control as non adherence with blood glucose lowering or lipid lowering drugs is associated with higher HbA1c and cholesterol levels

respect lively[13]. This study revealed that adherence to anti diabetic medication in type-2 diabetic patient is problematic, only 51.3% of the patients were never missed their daily medication and (20.8% and 28.2%) of the patient have excellent and very good adherence respectively which is similar with several study

Yet this does not include the cost of other adjunctive therapy such as anti hypertensive drugs required by the majority of the patient. This is in agreement with study done in Nigeria in which around 2/3 of the non-adherence is due to financial difficulty. According to this study the average monthly cost of anti diabetic drug was $ 22.9[10] which is much expensive as compared to this one, because in Ethiopia cost of medication is subsidized by government for some patient. The adoption of viable cost reduction strategies such as the pooled procurement, encouraging prescribing of low price but good quality generic anti diabetic drugs and strengthening of provision of subsiding by government and its collaborating with donor agencies may increase patient access to the needed ant diabetic medications which improve the adherence.

In this study, only 6.5% of the patients that missed their medication

claimed to have disclosed this to health care provider during consultation. The main factor cited for non disclosure were, short consultation time & lack of privacy resulting in inadequate physician-patient interaction during consultations. This may arise due to shortage of health professional, high patient workload and poor work environment in Ethiopia.

About 56% of patients use DMR to remind them to take their prescribed medication. Meal time and bed time were the most frequently DMR used. This finding shows the patients personal dally routine plays a great role in maximizing adherence to prescribed medications. Therefore, careful identification of patient-specific routine, it use in planning patient medication regiment by physicians during prescribing and counseling during dispensing by pharmacists should be the part of the diabetes care process. These likely to increase the chance of achieving high patient adherence with prescribed medications and subsequent optimal glycemic control.

Generally, the fact that self management practices were generally low among the patient studied indicates the need of educational empowerments is critical if successful self management is to be achieved.

This could be done with the use of a number of motivational strategies such as a scheduled home visits by designated health extension worker to evaluate and strengthen adherence with medications and self-management practices, peer-education and experiences through patient support groups; and confidential counseling by health professionals with each focusing on specific issues pertaining to their contributions to the diabetes care process.

Conclusion

The study have shown that majority of the patients with type 2 diabetes in Southwest Ethiopia are managed with OHA monotherapy. While the current prescribing strategy achieved glycemic control for less than half of the patients, majority are still not meeting the recommended blood glucose target. This appears mainly due to poor adherence with prescribed drug regimen and poor knowledge and practice of self management behaviors. There is a need for regular appraisal of drug prescribing and better monitoring of patient adherence with prescribed anti diabetic drugs and other diabetes self management practices. Training in learning processes and factors governing behavior are essential for all of those involved in delivery of patient care. Educational program should

recognize the wide range of learning strategies used by different peoples. The prescriber before prescribing and pharmacist before dispensing drugs for diabetic patients, he/she should negotiate about the treatment plan that the patient understands and to which he or she commits

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