ASSESSMENT OF COMPLIANCE TO TREATMENT IN TYPE II DIABETES

Bolimera Venkata Sudheer¹, M. Varalakshmi²

¹Associate Professor, Department of General Medicine, NIMS (Nimra Institute of Medical Sciences), Jupudi, Ibrahimpatnam, Vijayawada, Krishna District, Andhra Pradesh.

²Senior Resident, Kanumuri Hospital, Kothapeta, Guntur, Andhra Pradesh.

ABSTRACT

BACKGROUND

The burden of Diabetes in India is increasing day by day. But regarding treatment compliance in Diabetics not satisfactory in India. It is a serious risk factor for morbidity and mortality. To assess the compliance to treatment among Diabetic patients and to study reasons for the non-compliance this study was conducted. This study finds very high levels of non-adherence to the treatment due to lack of awareness and healthcare facilities. The most common reasons of non-compliance is the lack of sufficient motivation for the treatment adherence as many mentioned is 61.4% in diabetics.

In the study of Ludhiana, one of the important reasons of non-compliance was found as cost of checkup in 27% subjects, while 15.7% of subjects mentioned long distance between household and health facility as a reason.¹

MATERIALS AND METHODS

Observational study was conducted in the Diabetic population attending to this Hospital. All the cases of Diabetes diagnosed for more than 1 year were included in the study. A structured and pretested questionnaire was administered including the treatment details and factors assessing the compliance, knowledge and attitude towards the diabetic disease.

Exclusion Criteria- Type 1 Diabetics, Type 2 Diabetics diagnosed and taking treatment less than 1 year.

RESULTS

A total of 105 individuals were included in the study. The age of onset/detection of Diabetes is more common at the age of 36 - 45 yrs. in females, and at the age of 46 - 55 yrs. in males. In this study, 48.5% (51) were middle and 40% (42) belonged to lower socioeconomic condition. The Literacy among these diabetics were 59% (62) uneducated/below graduation and 25% (26) having graduation and 16% (17) above graduation; 37% of the individuals are unaware of sticking to the treatment and 27% are unaware about the course and Diabetic complications (micro or macro) and 36% are unaware that medication will delay the Diabetic complications; 79 (75%) were found taking drug treatment regularly since 1 year, 22 (21%) never discontinued the drug treatment since the onset/detection of diabetes. The non-compliance was due to the lack of faith in the medication 12 (11%), forgetfulness of daily medication 61 (58%) and financial constraints for the drug treatment 32 (31%). The diet non-adherence was 58% (62). The diet non-adherence was due to dislike for foods included in meal plans 47%, social influences were 47% and 6% are not able to follow the meal plan due to financial constraints, 91.5% (96) were non-adherent to exercise. The lack of motivation was noticed in 27% (50), lack of planning in 51% (50) and physical problems 22% (42).

CONCLUSION

Type 2 Diabetes is a progressive disease and needs Pharmacological treatment along with Diet, exercise, lifestyle changes which are essential to maintain glycaemic control and to reduce the complications. The non-adherence to Pharmacological treatment, diet, exercise, lifestyle changes are the main reasons for the failure in the Diabetic management. For efficient control of Diabetic management, the causes of non-adherence have to be perceived and corrected.

Among the numerous reasons for poor adherence include lack of understanding of long-term benefits of treatment due to low education status of the community, lack of faith in the treatment and motivation, unawareness and self-neglect, financial constraints and lack of communication between doctor and the patient, all of these lead to non-compliance.²

According to the Health Belief Model (HBM), individuals will be more likely to adhere to medical regimen if they believe that the benefits (perceived benefits) of the behaviours considered are immense and such behaviour is both possible and useful.³

KEYWORDS

Type II Diabetes, Glycaemic Control, Adherence, Non-Compliant, Non-Communicable Diseases (NCDs).

HOW TO CITE THIS ARTICLE: Sudheer BV, Varalakshmi M. Assessment of compliance to treatment in type II diabetes. J. Evolution Med. Dent. Sci. 2017;6(41):3235-3239, DOI: 10.14260/Jemds/2017/701

Financial or Other, Competing Interest: None.

Submission 04-04-2017, Peer Review 12-05-2017,

Acceptance 17-05-2017, Published 22-05-2017.

Corresponding Author:

Dr. Bolimera Venkata Sudheer,

A2 Kanishq Apartments, JKC Nagar

1st Lane, Guntur - 522006, Andhra Pradesh.

E-mail: bvsudheer9@gmail.com

DOI: 10.14260/Jemds/2017/701

BACKGROUND

Non-Communicable Diseases (NCDs) are chronic diseases of long duration and slow progression and are not transferable from one person to other. The four main types of NCDs are cardiovascular diseases, cancers, chronic respiratory diseases and diabetes mellitus. The NCDs are leading cause of mortality, worldwide with 80% of NCDs deaths in the low and middle income countries. The increase in type 2 diabetes is associated with obesity, hypertension and an increasingly elderly population. However, despite strong clinical

recommendations for individuals with a history of diabetes to adopt a healthier lifestyle, adherence to improved diet and exercise is poor.^[4] The World Health Organisation (WHO) has shown that adherence to long-term therapy for chronic illnesses in developed countries averages only around 50%.^[4] Such reduced adherence not only results in poor health outcomes, but it also has a significant impact on healthcare.

MATERIALS AND METHODS

Observational study was conducted in the Diabetic population attending to this Hospital. All the cases of Diabetes diagnosed for more than 1 year were included in the study. A structured and pretested questionnaire was administered including the medical documentation, treatment details and factors assessing the compliance, knowledge and attitude towards the diabetic disease.

This study was attempted to address the issues of Diabetic that can be controlled with patient awareness, timely diagnosis and intervention. All the known cases of diabetes as identified by the Physician and on anti-diabetic medications (self-reported) for more than one year were included in the study.

Effort was made to obtain the nearest possible birth date of each patient. Existing blood sugar levels over the period since diagnosis of diabetes was checked to verify the level of compliance according to WHO criteria of Fasting blood sugar less than 126 mg/dL and/or Post-Prandial blood sugar of less than 200 mg/dL as under control.⁵

The term adherence for use is chronic disorders as the extent to which a person "taking medication as prescribed and/or agreed between the patients and the healthcare provider."

"Non-compliant"- categorical endpoints (e.g. 90%) below which patients were considered "non-compliant" with the regimen. On compliance can be divided into categories. Primary non-compliance occurs when the patients fail to have the medication dispensed. Secondary non-compliance occurs when it is not taken as instructed. Intentional non-compliance may occur when the doctor's diagnosis or treatment is rejected by the patient. Unintentional non-compliance can be related to social, demographic, psychological and clinical varieties. Ex. retinopathy, neuropathy who is unable to see or feel and developing foot ulcer and therefore does not comply to seek medical attention.

Methods of measuring adherence can be either direct (biological marker) which is more sensitive, but can be invasive and is not usually practical or indirect (self-reporting, questionnaires, pill counts). Adherence is usually regarded as the proportion of patients taking at least 80% of their prescribed medication, but this cut-off can be up to 90% in some studies.⁶

RESULTS

Age at Onset	Male	Female
25 - 35	6	11
36 - 45	17	12
46 - 55	15	15
56 - 65	15	12

Table 1. Ages at Onset/Detection of Morbidity

The age of onset/detection of Diabetes is more common at the age of 36 - 45 yrs. in females, and at the age of 46 - 55 yrs. in the males.

Figure 1

Socioeconomic Class Distribution

Table 2 and Figure 2 showing the socioeconomic status of the individuals in the study.

Socioeconomic Distribution		
Lower	Middle	High
42	51	12

Table 2

Figure 2

Literacy Distribution

Table 3 and Figure 3 showing literacy statuses of the individuals in the study.

Uneducated and below Graduation	Graduation	Above Graduation
62	26	17

Table 3

Figure 3

Treatment Awareness

Table 4 and Figure 4 showing the Treatment Awareness

Aware	Un-aware	Awareness to stick to Treatment	Awareness of Course, and Complications	Awareness of Medication delay the Complications
74	31	31	22	30

Table 4

figure 4 Awareness of Disease

Figure 5 Unawareness of Disease

37% of the individuals are unaware of sticking to the treatment and 27% are unaware about the course and its complications (micro or macro) and 36% are unaware that medication will delay the complications.

Drug Adherence

Table 5 and Figure 6 showing the adherence to the drug treatment since the onset/detection of Diabetes and since last one-year period.

On Regular Drug Treatment since 1 yr.	On Regular Drug Treatment since Detection
79	22

Table 5

figure 6 Drug Adherence

Figure 7 Regular treatment since 1 year

Figure 8 Regular Drug treatment since Onset

79 (75%) were found taking drug treatment regularly since 1 year at the time of interview; 22 (21%) of the participants never discontinued the drug treatment since the onset/detection of diabetes.

Attitude towards regular Drug treatment

Lack of Faith in the Treatment	Forgetfulness of Daily Medication	Financial Constraints for the Drug Treatment
12	61	32

Table 6

figure 9 Attitude towards regular Drug treatment

Diet Adherence

Table 7, Figure 10 and 11 showing the Diet adherence

Non-adherence	Dislike for Foods included in the Meal Plan	Social Influences (Parties/Functions)	Not able to follow the Meal Plan due to Financial Constraints
62	47	47	5

Table 7

figure 10 Diet Adherence

figure 11 Diet Non-adherence

Non-adherence	Lack of Motivation	Physical Problems	Lack of Planning
96	50	42	50

Table 8. Exercise Adherence

figure 12 Exercise Adherence

figure 13 Exercise Non-adherence

91.5% (96) were non-adherent to Exercise. The factors that influence adherence to exercise include lack of motivation 27%,^[7] physical problems 22% and lack of planning 51% are the prominent barriers to adherence.

DISCUSSION

In India,⁸ Non-communicable Diseases are estimated to account for 60% of total deaths. Proportional mortality comparison shows that deaths due to diabetes alone are up to 2%, while deaths due to cardiovascular diseases account for 26%. A total of 105 individuals were included in the study. The age of onset/detection of Diabetes is more common at the age of 36 - 45 yrs. in females and at the age of 46 - 55 yrs. in the males. Though, there is no socioeconomic discrimination for the onset of the Diabetes, but in this study more cases were reported in the middle (48%) and lower (40%) income groups. In this study, 59% (62) of the individuals are uneducated/below graduation and 25% (26) having graduation and 16% (17) having above graduation. Literacy and awareness are the important factors in the prevention of the disease. The study population having 59% of low education status and 30% (31) are unaware to stick to the treatment and its complications and course and its complications.

The most common reasons of non-compliance is the lack of sufficient motivation for the treatment adherence as many mentioned is 61.4% in diabetics.

The most common cause of non-compliance is the lack of faith in the medication 12 (11%), forgetfulness of daily medication 61 (58%) and financial constraints for the drug treatment 32 (31%).

In the studies in South India showed that major factors associated with non-compliance in chronic disease were found to be the asymptomatic course of Disease and non-availability of free cost drugs from the local health centre pharmacy. The relatively asymptomatic course of the disease and lack of adequate knowledge about Disease in predispose patients may lead to non-adherence of the drug regimen.⁷

The systematic reviews confirm many patients with Diabetes took less than the prescribed amount of medication including both Oral Hypoglycaemic Agents and Insulin. ⁹Retrospective studies documented adherence to OHA therapy ranged from 36% - 93% in patients on treatment for 6 - 24 months. Prospective studies documented that 67% - 85% of OHA and Insulin adherence was 62% - 64%.

Guidelines from the ADA and the European Association for the Study of Diabetes (EASD) stress the importance of diet and exercise in the treatment of all stages of type 2 diabetes.

In this study, 58% (62) are non-adherent to the diet. With regard to diet, patients expressed a dislike for foods included in meal plans 47%, whereas the educators considered social influences equally important barriers 47% and 6% are not able to follow the meal plan due to financial constraints.

30/45 minutes a day, at least 5 times a week/all 7 days exercise is needed for Indians. Insufficient physical activity kills 3.2 million people globally and around 23% of adults aged > 18 yrs. are insufficiently active. In view of the prevalence, global reach and health effect of physical inactivity the issue should be appropriately described as Pandemic with far-reaching health, economic, environmental and social consequences - Lancet July 2012.

However, despite strong clinical recommendations for individuals with a history of diabetes to adopt a healthier lifestyle, adherence to improved diet and exercise is poor.¹⁰ Although type 2 diabetes usually occurs in people over the age of 40 years, it is becoming increasingly common in children, adolescents and young adults due to reduced physical activity and unhealthy eating patterns leading to obesity.¹⁰

CONCLUSION

Type 2 diabetes is a progressive disease and pharmacological treatment, diet, exercise, lifestyle changes are essential to maintain glycaemic control and reduce progress of complications. Even though adherence to medications leads to beneficial outcomes, but it is often poor.² There are numerous reasons for poor adherence including age, social, education, cost of the treatment and lack of understanding of long-term benefits of treatment. Defective communication between Doctor and the patient often leads to non-compliance.² Patients' understanding, recall and satisfaction have linked with compliance. We need to have a competent public health system along with innovative strategies, technology-based initiatives and an efficient use of existing resources. A multi-pronged approach is needed. It is important to develop prevention and control programs involving multiple agencies and innovative approaches to minimise the compliance in Diabetes management regime.

REFERENCES

- [1] Rampal L, Rampal S, Azhar MZ, et al. Prevalence, awareness, treatment and control of hypertension in Malaysia: a national study of 16,440 subjects. *J Public Health* 2008;122(1):11-8.
- [2] King DE, Mainous AG, Carnemolla M, et al. Adherence to healthy lifestyle habits in US adults, 1988-2006. *Am J Med* 2009;122(6):528-34.
- [3] Janz NK, Becker MH. The health belief model: a decade later. *Health Educ Q* 1984;11(1):1-47.
- [4] World Health Organization. Adherence to long-term therapies. Evidence for action. World Health Organization, Geneva, 2003.
- [5] World Health Organization: report on medication Adherence. Geneva, 2003.
- [6] Guillausseau PJ. Impact of compliance with oral antihyperglycemic agents on health outcomes in type 2 diabetes mellitus: a focus on frequency of administration. *Treat Endocrinol* 2005;4(3):167-75.
- [7] International Diabetes Federation. Diabetes and impaired glucose tolerance. IDF Diabetes Atlas, 5th edn. Brussels, Belgium: International Diabetes Federation, 2012.
- [8] Donnan PT, MacDonald TM, Morris AD. Adherence to prescribed oral hypoglycaemic medication in a population of patients with type 2 diabetes: a retrospective cohort study. *Diabet Med* 2002;19(4):279-84.
- [9] Inzucchi SE, Bergenstal RM, Buse JB, et al. Management of hyperglycaemia in type 2 diabetes: a patient-centered approach. Position statement of the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD) *Diabetologia* 2012;55(6):1577-96.
- [10] Praet SF, van Rooij ESJ, Wijtvliet A, et al. Brisk walking compared with an individualized medical fitness programme for patients with type 2 diabetes: a randomized controlled trial. *Diabetologia* 2008;51(5):736-46.