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Original Research

Assessment Of Adherence To Medication In Patients With Type II Diabetes Mellitus

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ABSTRACT

Background: Adherence is the extent to which individuals follow the instructions they are given for prescribed treatments. The present study was conducted to assess the adherence level of patients with type II DM. **Materials & Methods:** The present study was conducted on 148 patients which included 88 males and 60 females. All underwent fasting and random blood glucose level examination. All were provided with Morisky 8-item medication questionnaire which included information related to adherence to medication. It was recorded as low, medium and high. Awareness about disease and reasons were evaluated. **Results:** 120 males were aware of medicines taken, 90 aware about dose and route of medicine, 102 were aware about frequency of administration, 84 were aware about precautions to be taken while taking medicines, 72 were aware that not taking medication would affect in any way, 30 stopped taking any medicines prescribed by doctor and 45 stopped any medicine due to adverse effects. The difference was significant ($P < 0.05$). Adherence level was high (5%), medium (30%) and low (65%). The difference was significant ($P < 0.05$). Reasons for non adherence was forgetfulness (23%), high cost (18%), not aware of need (31%) and little perception (28%). The difference was non-significant ($P > 0.05$). **Conclusion:** Patients with type II DM are usually on multiple medications. We found 65% showed low adherence level. The most common reason was not aware about the need.

Key words: Adherence, Awareness, Diabetes mellitus

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INTRODUCTION

Diabetes mellitus (DM) is a metabolic disease characterized by high blood glucose level due to insufficient insulin production in the body. Insulin is secreted by beta cells of islets of Langerhans of pancreas. Diabetes mellitus is of 2 types. Type I or juvenile diabetes is seen in young adults and type II is seen in adults. Type I is also known as insulin dependent DM whereas type II is known as non-insulin dependent DM. Patients with DM are on multiple drug therapies.¹ There are multiple complications of DM such as microvascular or macrovascular. There is no part or organ of the body which is not affected by diabetes in lesser or maximum extent. It has effect on almost all organs such as heart, kidney, pancreas, urinary bladder, uterus, prostate etc. The susceptibility to enhanced morbidity and mortality is seen in patients with type 2 DM because of the commonness of this type of DM, its insidious onset and late recognition. Adherence has been defined as the extent to which individuals follow the instructions they are given for prescribed treatments.² Patients with type 2 diabetes mellitus are at first motivated to sustain a healthy diet and exercise regimen. It is followed by early drug therapy that involves one or more oral

hypoglycemic agents and later may include an injectable treatment. Patients are instructed to maintain normal blood pressure, lipid level in the body to prevent the complications associated with type 2 diabetes mellitus.³ The present study was conducted to assess the adherence level of patients with type II DM.

MATERIALS & METHODS

The present study was conducted in the department of Pharmacology. It comprised of 148 patients which included 88 males and 60 females. Patients above 18 years of age, presence of hypertension, CHF and dyslipidemia were included. Patients with type 1 DM and with cardiovascular complications were excluded from the study. The study approval was obtained from institutional ethical committee. All subjects were informed and written consent was obtained.

General information such as name, age, gender etc. was recorded. All underwent fasting and random blood glucose level examination. All were provided with Morisky 8-item medication questionnaire which included information related to adherence to

medication. Awareness about disease and reasons were evaluated. It was recorded as low, medium and high. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I shows that 120 males were aware of medicines taken, 90 aware about dose and route of medicine, 102 were aware about frequency of administration, 84 were aware about precautions to be taken while taking medicines, 72 were aware that not taking medication would affect in any way, 30 stopped taking any medicines prescribed by doctor and 45 stopped any medicine due to adverse effects. The difference was significant (P< 0.05).

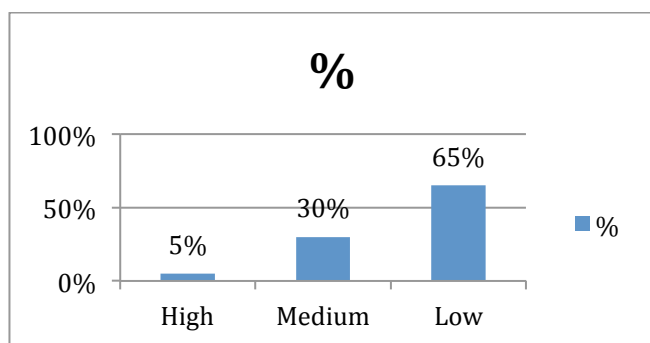
DISCUSSION

WHO estimates only half of people with chronic diseases are medication adherent. Numerous studies have revealed variable nonadherence rate depending upon type of instrument used to measure adherence. Various methods are used to measure adherence, but none of these are suitable in all situations, each having its own pros and cons. Hence, no method is considered the gold standard.⁴ In present study we utilized Morisky 8-item medication questionnaire.

Table I Subjects awareness about medication

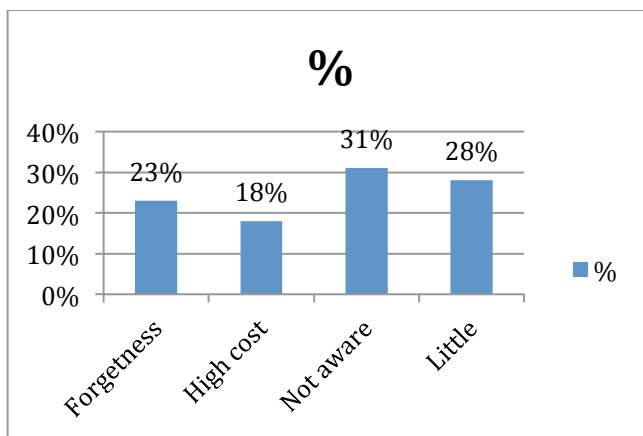
| Awareness | Yes | No | P value |
|--|-----|-----|---------|
| Aware of medicines taken | 120 | 28 | 0.01 |
| Aware about dose and route of medicine | 90 | 58 | 0.04 |
| Aware about frequency of administration | 102 | 46 | 0.01 |
| Aware about precautions to be taken while taking medicines | 84 | 64 | 0.5 |
| Aware that not taking medication would affect in any way | 72 | 76 | 0.1 |
| Stopped taking any medicines prescribed by doctor | 30 | 118 | 0.05 |
| Stopped any medicine due to adverse effects | 45 | 103 | 0.03 |

Graph I Level of adherence in subjects



Graph I shows that adherence level was high (5%), medium (30%) and low (65%). The difference was significant (P< 0.05).

Graph II Reasons for non-adherence



Graph II shows that reasons for non adherence was forgetness (23%), high cost (18%), not aware of need (31%) and little perception (28%). The difference was non- significant (P> 0.05).

We included 148 DM patients. It comprised of 88 males and 60 females. We assessed the awareness level in subjects. We found that 120 males were aware of medicines taken, 90 aware about dose and route of medicine, 102 were aware about frequency of administration, 84 were aware about precautions to be taken while taking medicines, 72 were aware that not taking medication would affect in any way, 30 stopped taking any medicines prescribed by doctor and 45 stopped any medicine due to adverse effects. This is in agreement with Nau et al.⁵

Methods of measuring adherence can be direct or indirect. Direct method is more sensitive but can be invasive and is not usually practical. Indirect is self-reporting or questionnaires. Indirect methods are frequently used, but can lead to inaccuracies since patients are often not a reliable source of information.⁶

We found that adherence level was high (5%), medium (30%) and low (65%). Mojtabai et al⁷ found adherence level was high (17%), medium (32%) and low (51%). Raj et al⁸ assessed the prevalence of medication non-adherence leading to poor glycemic control. The study was conducted on 150 subjects. The proportions of females/males with type 2 DM was found to be 69% and 31% respectively. 51.32% of these patients viewed their medications to be unaffordable. There was a significant relationship between patient age, gender and adherence to medication. Satwant et al found that 7% of patients were unable to adhere to their prescription medications due to cost.

In present study we found that reasons for non adherence was forgetness (23%), high cost (18%), not aware of need (31%) and little perception (28%). This is similar to Paes et al.⁹ There are many reviews representing the lack of adherence to treatment with one or more OHAs. It has been demonstrated that there is an inverse relationship between taking a prescribed OHA and HbA1c level, with each 10% increase in OHA adherence associated with a decrease of 0.1% in HbA1c. Garber et al¹⁰ found that mean age of the patients was 48.75 ± 1.73 years. 70% patients reported non-adherence to medication schedule. 58.66% had not buying all medicines, 34% were not taking prescribed dose of medicines, 30% were taking additional non-prescribed medicines and 25.33%

were not taking medicines for required duration. They observed that unawareness about need of each medicine was seen in 55.66%, forgetfulness in 50.66% and 43.33% showed high cost the common causes of non-adherence. Authors observed 0%, 26% and 74% of patients as high, medium and low adherence respectively. The limitation of the present study was small sample size used in the study. Moreover, different scales and methods should have been compared. Subjects' practice and knowledge was not assessed.

CONCLUSION

Patients with type II DM are usually on multiple medications. We found 65% showed low adherence level. The most common reason was not aware about the need.

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