ASSESSMENT OF MEDICATION ADHERENCE AMONG PATIENTS WITH HYPERTENSION AND DIABETES MELLITUS IN URBAN FIELD PRACTICE

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ABSTRACT

Objective: The present study was conducted to assess the medication adherence among patients with hypertension (HTN) and diabetes mellitus in the urban area of Tamil Nadu and to assess the reasons for non-adherence.

Methods: A cross-sectional study was conducted in an urban area of Tamil Nadu. A total of 100 subjects were enrolled in the study. The patients are diagnosed with HTN and diabetes was included in the study. Morisky medication adherence scale was used to measure adherence among the selected subjects and each patient's details were regarding non-adherence was noted. The results were tabulated.

Results: In our study, the medication adherence of the patients was 84% and the non-adherence patients were 16%. Medication adherence was found to be more in male (58%) when compared with females (42%). In our study, the reasons for non-adherence include high drug cost was more when comparing other factors. In our study, the patients receiving drugs from the medical shop were more comparing with government and private hospitals.

Conclusion: A four-fifth of the subjects is adherence to the prescribed medications. The patients having poor medication adherence due to the high cost of the drug and forgot to take use their medication.

Keywords: Medication adherence, Hypertension, Diabetes mellitus, Morisky scale.

INTRODUCTION

Arterial blood pressure is "normal" when the systolic pressure is 90–119 mmHg and the diastolic pressure is 60–79 mmHg. When the arterial pressure is ≥120/80 mmHg, a person is considering being hypertensive [1-3].

Hypertension (HTN) is a chronic disease also commonly treated with drugs that decrease cardiac output. Cardio inhibitors either block beta-adrenoceptors on the heart (i.e., beta-blockers) or L-type calcium channels (i.e., calcium channel blockers), which decreasing heart rate and contractility (inotropy). Vasodilator drugs, which decrease systemic vascular resistance, are used to decrease blood pressure and other drugs such as alpha-adrenoceptor antagonists (alpha-blockers), direct-acting vasodilators, angiotensin-converting enzyme inhibitors, and angiotensin receptor blockers are also used to treat HTN.

Diabetes is a metabolic disorder that is characterized by high blood glucose and either insufficient or ineffective insulin. Type I diabetes, the deficiency of insulin, is due to a decline in the number of beta cells, the pancreas contains. Type II diabetes is the most common form of diabetes, with about 90% of diabetes falling into the Type II category.

The diabetes can be managed through pharmacological and non-pharmacological approaches includes sulfonylureas, dipeptidyl peptidase-4 inhibitor, insulin, biguanides, metaglinides, thiazolidinedione, alpha-glucosidase inhibitors, sodium glucose transporters, glucagon-like peptides, and lifestyle interventions can reduce the disease burden [4-6].

Medication adherence usually refers to whether patients take their medications as prescribed (e.g., twice daily), as well as whether they continue to take a prescribed medication [7,8].

Various factors affect medication adherence such as the complexity of the prescribed drug regimen, duration of therapy, and many psychosocial factors [9]. Hence, this study is focused on assessing the level of medication adherence in urban area by patients and the factors which hinder them from prescription non-adherence.

The present study was conducted to assess the medication adherence among patients with HTN and diabetes mellitus (DM) in the urban area of Tamil Nadu and to assess the reasons for non-adherence.

METHODS

The cross-sectional study was conducted in the urban field practice area of SRM Medical College Hospital and Research Center. In our study, a short, validated patient questionnaire "THE MORISKY – INSTRUMENT" is used to measure adherence among the selected subjects. According to this, the individuals who said "NO" to all the four questions are considered to be adherent to the medications. Community-based data collection was done in the urban field practice area of the SRM Medical College, Hospital and Research Centre (NH1-M.M Nagar). The study was conducted for 3 months from January 2017 to March 2017. Informed consent was obtained from all patients participating in this study. The statistical analysis was performed using SPSS version 16.0 (Chi-square test). A total of 100 study subjects (43 DM, 26 hypertensive, and 31 with both DM and HTN) were selected based on the inclusion and exclusion criteria.

Inclusion criteria
Subjects more than 18 years of ages.
Subjects diagnosed with DM and/or HTN and are willing to participate.
Subjects with duration of diabetes and/or HTN 1–15 years.

Exclusion criteria
Subjects with <18 years of ages.
Subjects with complications other than DM and HTN.

RESULTS

Among 100 patients recruited, the male patients (diabetes, HTN, and patients diagnosed with HTN and diabetes) were 57 (57%) and female patients were 43 (43%) (Table 1).

In our study, the total of 25–55 age patients was 37% and 55–75 age patients were 55% and 75–95 age patients were 8% (Table 2).

In our study, daily <3 pills consuming subjects were 8, 3-6 pills consuming subjects were 26, more than 6 pills consuming subjects were 12 as shown in Table 3.

Table 4 summarizes the average medication cost per a month includes below 3000 cost spending patients were 78%, 3000–6000 cost spending patients were 6%, 6000–9000 cost spending patient was 1%, and patients receiving free cost of medications were 15% from government.

Table 5 summarizes the patients receiving ayurvedic treatment were 3% and homeopathic treatments were 2% and allopathic patients were 95%.

The adherence and non-adherence was assessed using Morisky medication adherence scale. The medication adherence of the patients was 84% and non-adherence patients were 16% (Table 6).

The adherence to the prescribed medications was studied. Male (58%) is having more adherence than female (42%) (Table 7).

In our study, the reasons for non-adherence include high drug cost 50%, forgetfulness to take the medication include 38%, drug side effects 6%, and drug discontinuation 6% (Table 8).

Table 9 summarizes the patients are receiving sources of medications include medical shop 48 (48%), patients receiving drugs from government hospital includes 18 (18%), and patients receiving drugs from private hospital includes 34 (34%).

Table 1: Gender wise distribution of study subjects (n=100)

Gender	Number of patients DM	HTN	Both DM+HTN	Frequency (%)
Male	29	15	13	57 (57)
Female	14	11	18	43 (43)
			Total	100 (100)
			Mean±SD	50±9.89

Values are expressed in frequency and percentage. SD: Standard deviation, DM: Diabetes mellitus, HTN: Hypertension

Table 2: Age wise distribution of study subjects (n=100)

Age	Number of patients DM	HTN	Both DM+HTN	Frequency (%)
25–55	19	6	12	37 (37)
55–75	22	16	17	55 (55)
75–95	2	4	2	8 (8)
			Total	100 (100)
			Mean±SD	33.33±23.71

Values are expressed in frequency and percentage. SD: Standard deviation, DM: Diabetes mellitus, HTN: Hypertension

Table 3: Distribution of data based on number of pills per day (n=100)

Number of pills per day	DM	HTN	Both DM+HTN	Frequency (%)
<3	32	22	8	62 (62)
3–6	9	3	14	26 (26)
>6	2	1	9	12 (12)
			Total	100 (100)
			Mean±SD	33.33±25.79

Values are expressed in frequency and percentage. SD: Standard deviation, DM: Diabetes mellitus, HTN: Hypertension

Table 4: Distribution of data based on average cost of medicines spent per month (n=100)

The average cost of medicines spent per month	DM	HTN	Both DM+HTN	Frequency (%)
0–3000	34	22	22	78 (78)
3000–6000	1	1	4	6 (6)
6000–9000	-	-	1	1 (1)
Free cost	8	3	4	15 (15)
			Total	100 (100)
			Mean±SD	25±35.80

Values are expressed in frequency and percentage. SD: Standard deviation, DM: Diabetes mellitus, HTN: Hypertension

Table 5: Distribution of data based on patients receiving alternative treatment (n=100)

Alternative treatment	Number of patients DM	HTN	Both DM+HTN	Frequency (%)
Ayurveda	2	-	1	3 (3)
Homeopathy	1	-	1	2 (2)
Allopathic	38	29	28	95 (95)
			Total	100 (100)
			Mean±SD	33.33±53.40

Values are expressed in frequency and percentage. SD: Standard deviation, DM: Diabetes mellitus, HTN: Hypertension

Table 6: Details of the patients regarding adherence and non-adherence based on Morisky medication adherence scale (n=100)

Subjects	Male	Female	Frequency (%)
Adherence	49	35	84 (84)
Non-adherence	8	8	16 (16)
		Total	100 (100)
		Mean±SD	50±48.08

Values are expressed in frequency and percentage. SD: Standard deviation, DM: Diabetes mellitus, HTN: Hypertension

Table 7: Adherence to the prescribed medications (n=84)

Gender	Number of patients DM	HTN	Both DM+HTN	Frequency (%)
Male	25	13	11	49 (58)
Female	10	10	15	35 (42)
			Total	84 (100)
			Mean±SD	42±9.89

Values are expressed in frequency and percentage. SD: Standard deviation, DM: Diabetes mellitus, HTN: Hypertension

Table 8: Reasons for non-adherence (n=16)

Reason	Frequency (%)
Drug cost	8 (50)
Forgetfulness due to busy schedule	6 (38)
Side effect	1 (6)
Discontinuation	1 (6)
Total	16 (100)
Mean±SD	4±3.55

Values are expressed in frequency and percentage. SD: Standard deviation, DM: Diabetes mellitus, HTN: Hypertension

Table 9: Sources of collecting medication (n=100)

Sources of collecting medication	DM	HTN	Both patients with DM+HTN	Frequency (%)
Medical shop	18	14	16	48 (48)
Government hospital	9	4	5	18 (18)
Private hospital	16	8	10	34 (34)
			Total	100 (100)
			Mean±SD	33.33±15.01

Values are expressed in frequency and percentage. SD: Standard deviation, DM: Diabetes mellitus, HTN: Hypertension

DISCUSSION

The numbers of subjects are recruited in the study as similar to the previous studies [10-12].

In our study, 55–75 patients age patients were more when compared with other age groups. In our study, <3 pills using patients were more (62%) compared with other pills consuming subjects. The healthcare costs spending per month patients were included 0–3000 cost patients were more when compared with the other costs which are similar to previous studies.

In our study, the reasons for non-adherence were found to be high drug costs (50%), forgetfulness to take the medication (38%), and drug side effects (6%) which are similar to previous studies conducted by Medi *et al.*, in 2015, among south Indian diabetes patients [13].

Allopathic treatment, patients were more when compared with Ayurveda and homeopathy treatments. In our study, it was observed that male diabetic patients have more medication adherence compared to others which is in concordance with the previous studies. In our study, medication adherence patients were (84%) more when comparing non-adherence patients (16%) which are quite similar to the study conducted by Ramli *et al.* where the medication adherence is 53.4% [16].

HTN and diabetes are major chronic diseases in the world. Early detection and screening programs can arrest the progressing of disease complications [14]. The lifestyle interventions and regular blood glucose levels monitoring and regular medication practice and were needed for the patients to prevent further disease complications. The informational booklet and patient counselling were effective in increasing patient compliance [15-17].

In our study, the patients receiving drugs from the medical shop were more compared to government and private hospitals. A small number of subjects were recruited in the study is the main limitations of the study.

CONCLUSION

A four-fifth of the subjects is adherence to the prescribed medications. The patients have poor medication adherence due to the high cost of the drug and forgetfulness to take their medication. Hence, the pharmacist's role is important for the improvement of patient medication adherence by providing patient counseling services and by creating awareness regarding disease.

AUTHOR'S CONTRIBUTIONS

Manikandan R: Interpretation of data, drafting of report and approval of the version to be published. Nandamuri Sri Sai Sudha: Interpretation of data, drafting of report and approval of the version to be published. Logaraj M: Interpretation of data, revising of report for important intellectual content and approval of the version to be published.

CONFLICTS OF INTEREST

None.

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