A CROSS SECTIONAL OBSERVATIONAL STUDY TO MONITOR AND EVALUATE THE ADHERENCE OF PATIENTS ON ANTIHYPERTENSIVE MEDICATION

AUTHOR

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ABSTRACT: *The aim and objective of the study was to determine the non- adherence of patients taking anti hypertensive medication and to evaluate the factor for non- adherence using hill bone scale. Cross sectional observational study was been conducted in OP Cardiology Vijaya Group Of Hospitals, Unit Of Vijaya Medical & Educational Trust Vadapalani. The data was collected using a pre structured data entry form and was conducted during a period of 6 months from april 2022 to September 2022. In this study we conclude that out of 200 patients 66.50% (133) were adherent to the drug therapy. The reason behind non adherent is mainly forgetfulness and negligence. Therefore it is necessary to educate the patient regarding disease and the importance of adherence. Pharmacist provide patient education that helps in better understanding of their disease and medication which will improve of health care outcome of the patient.*

KEY WORDS: Hypertension, HILL-BONE medication adherence assessment scale

INTRODUCTION:

Hypertension is the most common non communicable disease and also the leading cause for cardiovascular diseases worldwide[1]. Hypertension affects approximately 50 million adults, one third of whom are not aware of their condition.[2]

MEDICATION ADHERENCE:

Definition: According to world health organization, medication adherence is "The extent to which a person's behavior– taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendation from healthcare provider. [4] The terminology medication adherence was preferred as a substitute for older term 'compliance'. Therefore, in other words, medication adherence refers to act of complying to a demand. [5,7]

Medication adherence can be defined according to 3 quantifiable parameters:-

(i) Initiation

(ii) Implementation

(iii) Discontinution

METHODS TO ASSESS MEDICATION ADHERENCE:

There are two methods of assessing medication adherence

1. Direct method
2. Indirect method

1. Direct Method:

It is the measurement of the drug or a metabolite concentration in the body fluid. This is considered as an adequate and precise method that contain strong evidence of the ingestion of the drug. It helps to observe the patient medication taking behavior by health care practitioners which can provide proof of the ingestion of the medicine. Bias can be easily produced when patient administer medication only when they receive visits from the health care practitioner, leading to false adherence.

2. Indirect Method:

Pill Count:

· Counting the number of pills remaining in a patient's supply and calculating the number of pills that the patient has taken since filling the prescription is the easiest method for calculating patient medication adherence.

· Some data indicate that this technique may underestimate adherence in older populations.

Electronic Monitoring:

The Medication Event Monitoring System (MEMS) manufactured by Aardex Corporation allows the assessment of the number of pills missed during a period as well as adherence to a dosing schedule.

· The system electronically monitors when the pill bottle is opened, and the researcher can periodically download the information to a computer.

· The availability and cost of this system could limit the feasibility.

Pharmacy Records and Prescription Claims:

· This method can be used primarily for medications that are taken for chronic illnesses (such as hypertension).

· The records provide only an indirect measure of drugs consumed.

· Patterns of over and under consumption for periods less than that between refills cannot be assessed.

Patient Interviews:

· Studies have consistently shown that third-party assessments of medication adherence by healthcare providers tend to overestimate patient's adherence.
· Interviewing patients to assess their knowledge of the medications they have been prescribed and the dosing schedule provide little information as to whether the patient is adherent with the actual dosing schedule. [6,8]

METHODS TO IMPROVE ADHERENCE

· Simplifying regimen characteristics
· Imparting knowledge
· Modifying patient beliefs
· Patient communication
· Leaving bias
· Evaluating adherence

1. Simplifying Regimen Characteristics:

¬ Adjusting the frequency, dose, dosage, and timing of medication.
¬ Matching to patients' activity of daily living.
¬ Using medication adherence aids such as medication boxes, alarms.

2. Imparting Knowledge

¬ Discussion with physician, nurses or pharmacists.
¬ Distribution of written information or pamphlets
¬ Accessing health related information on the web.

3. Patient Communication:

¬ Including the patients in discussion
¬ Providing clear and direct information
¬ Sending reminders via mail or telephone

4. Leaving the Bias:

¬ Tailoring the education to patients level of understanding

5. Evaluating adherence

¬ Self-reporting
¬ Pill counting, measuring serum or urine drug levels. [13]

Aim:

This cross sectional observational study aims at determining the adherence of patients taking antihypertensives.

Objective:

✓To evaluate the adherence of patients on hypertensive medication using the Hill bone scale.

✓To determine and report the factors affecting medication adherence to the concerned physician.

✓Improve the adherence in patients by collaborating with the concerned physician.

METHODOLOGY:

The study was approved by institutional ethics committee of vijaya hospital **[IEC-VBMHR/LTR/202/036] .** This is a cross sectional observational study conducted in OP Cardiology Vijaya Group of Hospitals, Unit Of Vijaya Medical & Educational Trust Vadapalani. This Prospective data collection was performed in 200 patients meeting inclusion criteria, for 6 months after getting approval from the Ethical Committee of Vijaya Group of Hospitals, Unit Of Vijaya Medical & Educational Trust Vadapalani.

PATIENT SELECTION:

Inclusion criteria: It includes patients aged more than 18 years, with or without comorbid conditions who are prescribed with any antihypertensive drugs in both outpatient of Vijaya Medical & Educational Trust Vadapalani.

Exclusion criteria:

Patients with dementia, other psychiatric conditions, pregnancy, lactating women and immuno-compromised patients

RESULTS:

The study comprises of 200 outpatients taking antihypertensives. Out of which 68.5% (137) were male patients and 31.5%(63) were female patients. Most of the patients in our study were in the age group 56-70 years and thus adherence level was seen high among these patients(69%). **Table 1** present the adherence rate of patients in relation to the socio-demographic characteristics.

Table 1: Socio-Demographic Characteristics And Adherence:

Factors included	high adherence	medium adherence	poor adherence	total (n=200)	P-VALUE
Gender					
Male	92	37	8	137	0.803
Female	41	21	1	63	
Total	133	58	9	200	
Age					
26 – 40	2	3	1	1	0.322
41 – 55	31	14	2	6	
56 – 70	69	29	5	47	
71 – 85	30	12	1	103	
more than 85	1	0	0	43	
Total	133	58	9	200	
Occupation					
Unemployed	62	20	3	85	
Employed	48	28	5	81	
Retired	23	10	1	34	0.239
Total	133	58	9	200	

Patients were interviewed using a 9 item HILL BONE SCALE and thus adherence level was determined. Out of 200 patients 66.50% (133) patients showed high Adherence as given in **figure 1**, Females were more

adherent than males.The non adherence rate in our study was found to be more among employed patients (5%).From the study it is seen that patients presented with hypertension had one or more comorbidities. More number of hypertensive patients were presented with CAD 43% (86) followed by T2DM 35%(70). Nearly 49% (98) of the patients were prescribed With Angiotensin Receptor Blockers , 23% (47) were prescribed with Beta Blockers, 22% (45) were prescribed with Diuretics. About 10.50% (17) were smokers and 8.50%(17) were alcoholics. From our total study population 47%(94) of the patients were obese. The findings of the study suggest that the main reasons for medication non adherence were forgetfulness 18.50%(37), financial status 1.50%(3) and negligence 17%(34) as shown in **table 2**, prescribed by the prescriber and also most of the hypertensive patients lacked knowledge about their condition. Out of 200 patients 87% (174) were patients without knowledge and 13% (26) were patients with knowledge.

Figure 1:Adherence Assessment:

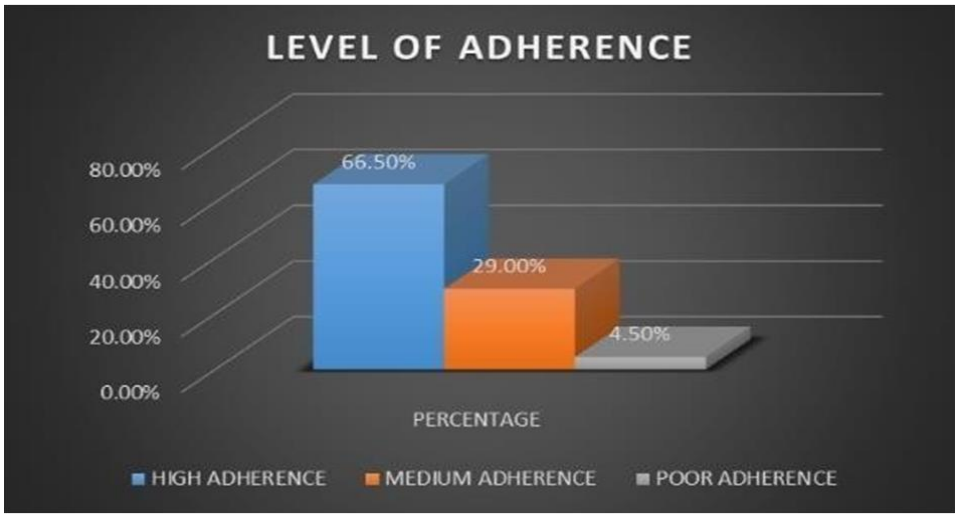

Table 2: Reasons for Non-Adherence:

REASONS	NO.OF PATIENTS	PERCENTAGE
FORGETFULLESS	37	18.50%
FINANCIAL	3	1.50%
NEGLIGENCE	34	17.00%

DISCUSSION:

This study aims at finding the rate of adherence to antihypertensive and also the factors affecting the medication adherence and comprises of 200 outpatients taking antihypertensive. Out of which 68.5% (137) were male patients and 31.5% (63) were female patients. Most of the patients in the study were in the age group 56-70 years and thus adherence level was seen high among these patients (69%). In this study a total of 200 patients were interviewed using a 9 item HILL BONE SCALE and thus adherence level was determined. Out of 200 patients 66.50% (133) patients showed high adherence. The findings of our present study suggest that the medication adherence was high among patients taking antihypertensives. Females were more adherent than males. Anup Bhusal 2016 also reported similar observation of 58.9% compliance rate. It is seen that the non-adherence rate in the study was found to be more among employed patients (5%). Fahad M. Algabbani and Aljoharah M. Algabbani 2020 also reported similar observation showing employed categories such as 61.8%(55) of public, 51.1% (46) of military , 75%(6) of private sectors in which it showed high level of non-adherence rate[9]. The study does not show any statistical significant relation between sociodemographic factors and non-adherence. Similar results were found by the study conducted by M. Yassine et al 2015 that sociodemographic factors were not associated with any relation between the adherence levels [10]. From the study it is seen that patients presented with hypertension had one or more comorbidities. More number of hypertensive patients were presented wit CAD 43% (86) followed by T2DM 35% (70). Nearly 49% (98) of the patients were prescribed With Angiotensin Receptor Blockers, 23% (47) were prescribed with Beta Blockers, and 22% (45) were prescribed with Diuretics. About 10.50% (17) were smokers and 8.50% (17) were alcoholics. From the total study population 47% (94) of the patients

were obese. The findings of this study suggest that the main reasons for medication non adherence were forgetfulness 18.50% (37), financial status 1.50% (3) and negligence 17% (34). Out of 200 patients 87% (174) were patients without knowledge and 13% (26) were patients with knowledge about their condition.

LIMITATIONS:

1) The limitation in the study was that we had limited period of time (6 months).
2) Study with large sample size and more rigorous study design over a longer period of time needto assess adherence and detect association
3) Other adherence methods like pill counting, medication event monitoring gadgets or drugestimation were not done.

CONCLUSION:

In this study we conclude that out of 200 patients 66.50% (133) were adherent to the drug therapy .By providing education and counselling we could increase the adherence rate, because most of the patients were unaware of their condition and unemployed patients were high adherent than employed one. The reason behind non adherent is mainly forgetfulness and negligence. Therefore it is necessary to educate the patient regarding disease and the importance of adherence. Further studies also suggest that clinical pharmacist can educate the patient regarding disease and medication. Pharmacist provide patient education that helps in better understanding of their disease and medication which will improve the health care outcome.

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