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The Impact of Counseling on Drug Adherence in Hypertensive Patients at Tertiary Care Hospital in Larkana, Sindh

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Abstract: This study aimed to monitor the impact of counseling on adherence in hypertensive patients. Patient adherence was measured using the Hill-Bone medication adherence scale; non-adherent participants were counseled regarding antihypertensive medicines. The counseling impact was measured among enrolled participants. Most participants were male (n = 135), and only five were transgender. 52% of patients were from rural areas, and 48% were from urban areas. The 70 participants were intermediate and passed only 23. 38% of study participants were unemployed, while 26% were government employees. The 116 patients were 61–70 years old, while only 29 participants were 71–80. 33% of participants were prescribed 5 drugs, whereas no reported patient was prescribed one drug. Extremely low adherence was observed before counseling, whereas excellent results were achieved after patient counseling regarding antihypertensive medicines. To date, no study exists to measure adherence to antihypertensive medications. This study will help the doctors to counsel the patients so that patients will take the medications according to the prescription. The adherence rate of hypertensive patients can be improved if the patients are properly counseled regarding antihypertensive medicines.

Keywords: adherence, counseling, hypertension.

諮詢對信德省拉爾卡納市三級護理醫院高血壓患者藥物依從性的影響

摘要：本研究旨在監測諮詢對高血壓患者依從性的影響。使用山骨藥物依從性量表測量患者依從性；不依從的參與者接受了有關抗高血壓藥物的諮詢。諮詢的影響是在登記的參與者中衡量的。大多數參與者是男性(n=135)，只有5人是變性人。52%的患者來自農村，48%來自城市。70名參與者是中級水平，只有23名通過。38%的研究參與者失業，而26%是政府僱員。116名患者年齡在61-70歲之間，而只有29名參與者年齡在71-80歲之間。33%的參與者開了5種藥，而沒有報告的患者開了一種藥。在諮詢之前觀察到極

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低的依從性，而在患者諮詢抗高血壓藥物後取得了極好的結果。迄今為止，尚無研究衡量抗高血壓藥物的依從性。這項研究將幫助醫生為患者提供諮詢，以便患者按照處方服藥。對高血壓患者進行適當的降壓藥物諮詢，可以提高高血壓患者的依從率。

关键词：堅持，諮詢，高血壓。

1. Introduction

Non-compliance to medicines prescribed to hypertensive patients is associated with serious consequences, including cardiovascular diseases and other complications like brain, eyes, kidney diseases, disturbed quality of life and healthcare costs may also increase [1, 5]. Moreover, medication non-adherence may have a negative impact on long-term health outcomes [2, 3]. It was found that teenagers are at high risk of non-adherence, therefore the aim of interventions is to promote medication adherence in this population [4].

In developing countries like Pakistan with lesser literacy rate and scarcity of resources, Non-adherence among hypertensive patients may lead to serious consequences [2]. Hence there is a dire need to improve medication adherence, particularly among hypertensive patients. Till date, no sufficient data has been published related to our study from Sindh province or even from Pakistan. Therefore, this study will not only help highlight the rate of Medication non-adherence but also implementation of particularly method that could be more helpful to improve the adherence among the study population.

The goal of antihypertensive medicines only will be achieved if the patient becomes compliant to the prescribed medicines and lifestyle and diet modification, as suggested by the consultant cardiologists [2, 5].

Hypertension is a cardiovascular disease which can be defined when the blood pressure of a person increases from the normal range is known as hypertension [6]. Blood pressure can be defined as "the pressure exerted by the blood on the walls of the blood vessels" [7]. During each heart beat pumps blood into the arteries. The normal blood pressure of a healthy human being is 120/80 mmhg. The 120 is a systolic pressure, while 80 is a diastolic pressure [8]. A person is said to be hypertensive when their blood pressure increases from 130/90 [9].

Hypertension is a serious medical condition if left untreated, serious complications may arise like other cardiovascular diseases including heart failure, it may also increase the risk of kidney brain and numerous other diseases [10].

According to the world health organization approximately 1.28 billion adults suffer from hypertension between the ages of 39 to 79 throughout the world majority of the cases belongs to poor income countries. It was found that 46% of the hypertensive patients are unaware of the condition they have. It was surveyed that only 21% hypertensive patients maintained their blood pressure in normal ranges [11].

Hypertension can be classified into two classes: primary or essential hypertension which can occur without any cause but diet and lifestyle play an important role in the development of essential hypertension, some other factors are such as obesity, excessive salt intake, heavy consumption of alcohol, lack of physical activity like exercise, stress, diabetes, low intake of potassium, calcium and magnesium [10, 12]. The second type of hypertension is called secondary hypertension in which underlying cause in known. The most common cause of high blood pressure in secondary hypertension is kidney disease [13].

Hypertension can be treated through medications, lifestyle and diet modifications. Medicines which are used to treat hypertension are angiotensin-converting enzyme inhibitors, diuretics, calcium channel blockers, beta blockers, angiotensin II receptor blockers and many other medications are used to treat hypertension depending upon the condition of the patient, the severity of the disease and co-morbidities.

Various methods are used to determine non-adherence like counting the number of Tablets, self-reported questionnaire, the occurrence of common side effects of drugs prescribed to hypertensive patients, the determination of serum drug concentrations of antihypertensive drugs and monitoring electronically [11, 14]. Among these methods, the most common, easy and cost-effective method for assessing the non-adherence in medical practice is self-reporting. The self-reporting method is highly specific because the questionnaire used in this contains specific questions it is also used with other tools to get the specific information of patients' medication use behavior [3, 15].

2. Research Methodology

2.1. Study Setting

Patients will be recruited from Cardiac OPD, who comes for follow-up visit at Shaheed Mohtarma Benazir Bhutto Medical University Hospital Larkana. Target Population is Hypertensive patients. Study

design is cross-sectional. Duration of the study was from six to ten months. Sample size was 250.

2.2. Inclusion Criteria

Hypertensive patients have coming for follow-up visits for 6 months. Patients with co morbidities were also included. Only those patients were included whose age from 40 to 80. Male, female, and transgenders were included in the study and patients who availed consultancy of consultants of cardiac OPD at SMBBMU hospital.

2.3. Exclusion Criteria

Patients admitted in wards were excluded. New hypertensive patients who are visiting the first time cardiac OPD of SMBBMU Hospital. Children were not included.

2.4. Measurement of Medication Adherence

The Hill-Bone medication adherence (HBMA) scale was used for measuring medication adherence.

2.5. Data Collection Procedure

Only those hypertensive patients were enrolled, who had been visiting cardiac OPD of hospital for 6 months. Te consultant cardiologists conducted clinical examinations for all patients. The Hill-Bone medication adherence (HBMA) scale was completed after obtaining informed consent, on every follow-up visit of the patient. The same method was applied to all the patients on their visit for prescription refill. For at least 06 visits, each patient was asked to fill out the details required. On each visit, the patient was counseled to improve the adherence.

2.6. Data Analysis/Statistical Procedure

The data were analyzed using descriptive statistics.

2.7. Ethical Considerations

All the data were shared with the participants. All the above methods have no harmful effects on the patients. Non-adherent participants were counseled that they are at increased risk of complications, which can be prevented by taking the medicines on time as prescribed by the doctor and modifications in their lifestyle as well as diet. The Ethical Review Committee of SMBBMU Larkana approved this study through Reference No. SMBBMU/ERC/012.

3. Results

3.1. Demographic Distribution of Study Subjects

In Table 1, demographic details of the patients are mentioned in which majority of the participants were male where as only five participants were transgenders, locality wise mostly patients were from rural areas. Education wise majority of the patients were of intermediate pass while most patients were uneducated. On the basis of employment majority of the patients were unemployed while few had non-government job, where as government job study subjects were in the minority.

Table 1 Demographic detail of study subjects

	Variables	n (%)
Gender	Male	135 (54)
	Female	110 (44)
	Transgender	05 (2)
Locality	Rural	129 (52)
	Urban	121 (48)
Literacy	Primary	35 (14)
	Matriculation	55 (22)
	Intermediate	70 (28)
	Graduation	67 (27)
	Un Educated	23 (9)
Employment	Government Employee	65 (26)
	Non-Government Employee	91 (36)
	Unemployed	94 (38)

3.2. Age-Wise Distribution of Study Subjects

Table 2 comprises on age wise groups of study subjects, in which the majority of the patients were of age from 61 to 70 years old where as a minority of the patients were of age from 71 to 80.

Table 2 Age-wise distribution

	Variable	n (%)
Age	40–50	47 (19)
	51–60	58 (23)
	61–70	116 (46)
	71–80	29 (12)

3.3. Drug-Wise Distribution of Participants

In Table 3, patients are divided according to no. of total drugs prescribed to them by the consultant cardiologist. Majority of the patients were prescribed five drugs, where as no any patient was prescribed only one drug.

Table 3 Drug-wise distribution

	Variable	n (%)
No. of drugs prescribed	1	00 (0)
	2	27 (11)
	3	41 (16)
	4	64 (26)
	5	83 (33)
	6	35 (14)

3.4. Measurement of Non-Adherence in Post Liver Transplant Recipients before Text Messages Remainders

In Table 4, adherence was measured before counseling the study participants regarding taking the medicines on time by using the Hill-Bone medication adherence scale. It was observed that a majority of the patients were non-adherent to therapy, the patients were habitual missing the doses intentionally, and patients were not taking the dose on time as prescribed to them by the doctors.

Table 4 Measurement of non-adherence in hypertensive patients before counseling

No.	Item	Response	n (%)
1	How often do you forget to take your high blood pressure medicine?	1. All the Time	05 (2)
		2. Most of the Time	103 (41)
		3. Some of the Time	115 (46)
		4. None of the Time	27 (11)
2	How often do you decide NOT to take your high blood pressure medicine?	1. All the Time	43 (17)
		2. Most of the Time	85 (34)
		3. Some of the Time	119 (48)
		4. None of the Time	03 (1)
3	How often do you forget to get prescriptions filled?	1. All the Time	29 (12)
		2. Most of the Time	83 (33)
		3. Some of the Time	91 (36)
		4. None of the Time	47 (19)
4	How often do you run out of high blood pressure pills?	1. All the Time	03 (1)
		2. Most of the Time	90 (36)
		3. Some of the Time	106 (42)
		4. None of the Time	51 (21)
5	How often do you skip your high blood pressure medicine before you go to the doctor?	1. All the Time	49 (20)
		2. Most of the Time	80 (32)
		3. Some of the Time	75 (30)
		4. None of the Time	46 (18)
6	How often do you miss taking your high blood pressure pills when you feel better?	1. All the Time	69 (28)
		2. Most of the Time	117 (47)
		3. Some of the Time	41 (16)
		4. None of the Time	23 (9)
7	How often do you miss taking your high blood pressure pills when you feel sick?	1. All the Time	79 (31)
		2. Most of the Time	107 (43)
		3. Some of the Time	40 (16)
		4. None of the Time	24 (10)
8	How often do you take someone else's high blood pressure pills?	1. All the Time	11 (4)
		2. Most of the Time	87 (35)
		3. Some of the Time	98 (39)
		4. None of the Time	54 (22)
9	How often do you miss taking high blood pressure pills when you are careless?	1. All the Time	42 (17)
		2. Most of the Time	86 (34)
		3. Some of the Time	88 (35)
		4. None of the Time	34 (14)

3.5. Measurement of Non-Adherence in Hypertensive Patients after Counseling

In Table 5, medication adherence was measured after counseling to see the impact of counseling for taking the medicines on time as prescribed to them by their consultants. It was observed that due to counseling, most study subjects became adherent to the therapy prescribed to them, only a few patients were non-adherent.

Table 5 The distribution of adherence according to Hill-Bone medication adherence scale after counseling

No.	Item	Response	n (%)
1	How often do you forget to take your high blood pressure medicine?	1. All the Time	00 (0)
		2. Most of the Time	10 (4)
		3. Some of the Time	35 (14)
		4. None of the Time	205 (82)
2	How often do you decide NOT to take your high blood pressure medicine?	1. All the Time	05 (2)
		2. Most of the Time	11 (4)
		3. Some of the Time	42 (17)
		4. None of the Time	192 (77)
3	How often do you forget to get prescriptions filled?	1. All the Time	02 (1)
		2. Most of the Time	13 (5)
		3. Some of the Time	42 (17)
		4. None of the Time	193 (77)
4	How often do you run out of high blood pressure pills?	1. All the Time	00 (0)
		2. Most of the Time	03 (1)
		3. Some of the Time	20 (8)
		4. None of the Time	227 (91)
5	How often do you skip your high blood pressure medicine before you go to the doctor?	1. All the Time	05 (2)
		2. Most of the Time	13 (5)
		3. Some of the Time	25 (10)

		4. None of the Time	207 (83)
6	How often do you miss taking your high blood pressure pills when you feel better?	1. All the Time	13 (5)
		2. Most of the Time	21 (8)
		3. Some of the Time	32 (13)
		4. None of the Time	184 (74)
7	How often do you miss taking your high blood pressure pills when you feel sick?	1. All the Time	09 (4)
		2. Most of the Time	15 (6)
		3. Some of the Time	37 (15)
		4. None of the Time	189 (75)
8	How often do you take someone else's high blood pressure pills?	1. All the Time	00 (0)
		2. Most of the Time	05 (2)
		3. Some of the Time	23 (9)
		4. None of the Time	222 (89)
9	How often do you miss taking high blood pressure pills when you are careless?	1. All the Time	08 (3)
		2. Most of the Time	14 (6)
		3. Some of the Time	25 (10)
		4. None of the Time	203 (81)

4. Discussion

Hypertension is a serious medical condition if left untreated, serious complications may arise like other cardiovascular diseases including heart failure, it may also increase the risk of kidney brain and numerous other diseases. In developing countries like Pakistan with lesser literacy rate and scarcity of resources, non-adherence among hypertensive patients may lead to serious consequences. Hence there is a dire need to improve medication adherence, particularly among hypertensive patients. Till date, no sufficient data has been published related to our study from Sindh province or even from Pakistan. Therefore, this study will not only help highlight the rate of Medication non-adherence but also the impact of patient counseling on non-adherence.

The authors of [1] conducted a study on 452 patients to check the prevalence of compliance and non-compliance in antihypertensive medicines on the Indian population using the Hill-Bone medication scale. It was found that the majority of the population was non-compliant to antihypertensive medicines they suggested that age base interventions may be given to the hypertensive patients so that they become adherent to their medicines. This is similar to the current study because in current study the same scale was used to measure non-adherence as well the majority of the study population was non-adherent to therapy, but after counseling, their adherence was improved in the majority of patients.

The authors of [2] conducted a review for determining the epidemiology of hypertension around the globe. It was found that hypertension burden increases day by day throughout the world, which can be improved by taking antihypertensive drugs on time and lifestyle modification. In the present study, the same issue was focused on and patients were counseled regarding antihypertensive therapy and excellent results were achieved.

The authors of [3] conducted a metaanalysis on studies to determine the prevalence of medication adherence in hypertensive patients in Iran by using different tools like Hill-Bone medication adherence scale, Morisky medication scale, self-care tool and research made tool, they found that over all medication adherence in hypertensive participants is low in the population of Iran that is similar to the current study because in current study low adherence was observed in participants.

5. Conclusion

This study concludes that the rate of adherence among hypertensive patients at Shaheed Mohtarma Benazir Bhutto Medical University Hospital Larkana was very low due to forgetfulness for taking medicines, more than two drugs, frequent dosage intervals, low literacy rate, prolong the duration of therapy and financial burden of medicines. It was observed that study subjects some time intentionally not taking their medicines on time as prescribed to them by their consultants. But when the same patients were counseled about the importance of taking the drugs on time and drawbacks of not taking the drugs, the results were totally different. This showed an excellent impact of counseling on a non-adherent study subject. Therefore, the study concludes that the rate of adherence among hypertensive patients can be improved if patients were counseled about therapy prescribed to them by the concerned doctor. To date, no any study was conducted to measure the adherence to antihypertensive medications. This study will help the doctors to counsel the patients, so that patients will take the medications according to prescription. The success of therapy depends upon adherence to therapy. This study will be helpful for the prescribers to get the therapeutic objectives of the therapy.

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