EVALUATION OF COMPLIANCE TO ANTI-HYPERTENSIVE MEDICATIONS IN PATIENTS WITH HYPERTENSION USING HILL-BONE SCALE

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Author's Contribution

JD and MSZ:Conducted the study and wrote the article. AH:Helped in review the article. AN:Re-arranged data and corrected article. MS:Tables and figures. NUH made corrections and did the proof reading.

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ABSTRACT

BACKGROUND: Medications are prescribed by physicians and to get the desired target compliance has the main role. There is common problem of compliance to prescribed medications in the society and its importance cannot be denied. This study was performed to evaluate the compliance of anti-hypertensive medications in patients presenting with hypertension.

MATERIAL AND METHODS: This was a descriptive, cross-sectional study carried out at Bolan University of Medical and Health Sciences Quetta over a period of six months. Non-probability convenient sampling was used. All hypertensive patients on anti-hypertensive medication were included after taking the informed consent. A questionnaire was used to collect the data. Five hundred and forty questionnaires were handed over to the willing patients. A total of 522 questionnaires were submitted back. After evaluation of received questionnaires, 501 patients were included. Evaluation of compliance to anti-hypertensive medication was assessed by Hill bone scale.

RESULTS: The study population was having mean age of 48.01 ± 9.31 years with range of 35-85 years. There were pre-dominant males i.e 273 (54.5%). In major portion of study population it was observed to be non-compliant to the medication i.e 449 (89.6%) while good compliance was observed in 52 (10.4%). Stratification of factors showed occupation to have a significant association ($p<0.05$).

CONCLUSION: Non-compliance was observed in 89.6% of styudy population and public awareness about compliance is needed.

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INTRODUCTION:

Hypertension is an important risk factor for future cardiovascular morbidity and mortality. It is responsible for more than 5% mortality throughout the world. The good control of hypertension is important to prevent future cardiovascular complications. One important factor in the management of hypertension is non-compliance to medications or irregular intake of medicines which thereby leads to uncontrolled hypertension.[1] Poor adherence to treatment of hypertension may be due to inability to afford the medicines or poor public awareness.This is one of the main reasons for patients presenting with resistant hypertension.[2]

A previous study carried out on non-communicable diseases (NCDs) has shown non-adherence to anti-hypertensive medicines was more in females and old age people.[3] The adherence can be improved by public awareness empowering the population, encouraging the intake of medicines and making an individual responsible for providing the medicines at home.[4] These factors should be followed to improve the compliance.[5]

In a study conducted in Pakistan has also reported cognitive impairment in elder population cost issues and poor public awareness as major factors for non-compliance.[6-10] In Balochistan which is far of area no previous study has been conducted, so this study was planned for the evaluation of compliance to anti-hypertensive medications in patients with hypertension using Hill-Bone scale.

MATERIAL AND METHODS:

This was a cross-sectional, descriptive study carried out at Bolan Medical Complex Hospital (BMCH), Quetta, Balochistan, Pakistan over a period of six months i.e January – July 2019. Non-probability convenience sampling was used. Questionnaires were handed over to 540 patients with hypertension out of which 522 questionnaires were received back. After analysis for inadequate data the remaining study population was 501 hypertensive patients. All hypertensive patients on anti-hypertensive medications with informed consent were included. Patients who were unable to understand Urdu language, like Afghan refugees and who did not consent to participate were excluded. Hill-Bone scale was used to see the compliance of anti-hypertensive medications. The questionnaire includes 14 questions and feedback was recorded as 4-point-scale with resultant score calculated as 14 (perfect compliance) to 56 (imperfect compliance i.e >14). The questionnaires were distributed to the willing subjects by hand followed by collection of questionnaires after being filled. Demographic data was assessed by descriptive statistics with mean ± SD, frequencies and percentages. Mann Whitney and Kruskal -Wallis test were applied to estimate relationship and difference amongst variables of study. Version 20 of SPSS was used to analyze the data. The study was assessed by ethical review board and consent was signed by the study population.

RESULTS:

The study population was having mean age of 48.01 ± 9.31 years with a range of 35-85 years. 273 (54.5%) were males. 392 (78.2%) were married. There were 118 (23.6%) illiterate. Unemployment was reported in 201 (40.1%) and majority of population was belonging to Pashtoon group. A major portion of study population was having no source of income i.e 269 (53.7%) (Table 1). The summary of the feedback to Hill-bone scale is shown in table 2.

449 (89.6%) patients were reported to have improper compliance while perfect intake of medicine was reported in fifty two (10.4%). Score of 14 was labeled as perfect compliance while score more than 14 was imperfect compliance.

Relationship between demographic features and Hill Bone scale score

There was a significant link between compliance and occupation calculated as p- value <0.05. Table no. 4

Table: 1: Demographic features

Features		Frequencies n=501	Percentages
Gender	Male	273	54.5
	Female	228	45.5
Marital status	Married	392	78.2
	Unmarried	109	21.8
Education	Uneducated	118	23.6
	Primary	101	20.2
	Matric	75	15.0
	Inter	73	14.6
	Masters	118	23.6
	Others	16	3.2
Occupation	Unemployed	201	40.1
	Housewife	72	14.4
	Student	34	6.8
	Govt. servant	96	19.2
	Business	80	16.0
	Others	18	3.6
Ethnicity	Pashtoon	200	39.9
	Baloch	103	20.6
	Punjabi	92	18.4
	Urdu	36	7.2
	Sindhi	37	7.4
	Others	33	6.6
Income per month	No income	269	53.7
	Less than 5000PkRs.	23	4.6
	5001-10000 PkRs.	36	7.2
	10001-15000 PkRs.	26	5.2
	150001-20000 PkRs.	51	10.2
	More than 20000 PkRs.	96	19.2

Table 2: Summary of feedback to Hill Bone Scale questionnaire

Questions (total 14)	None of the time	Fre-quently	More Fre-quently	Always
Forgetfulness hypertensive Medicines?	211 (42.1%)	161 (32.1%)	97 (19.4%)	32 (6.4%)
Deliberately leaving the dose of hypertensive medicine?	223 (44.5%)	224 (44.7%)	49 (9.8%)	5 (1.0%)
Frequency of salty food intake?	258 (51.5)	207 (41.3%)	35 (7.0%)	1 (0.2%)
Addition of salt, Fondor or aromat in your meals?	193 (38.5%)	255 (50.9%)	49 (9.8%)	4 (0.8%)
Frequency of intake of fast foods?	145 (28.9%)	160 (31.9%)	176 (35.1%)	20 (4.0%)
Taking next appointment before leaving the hospital?	74 (14.8%)	77 (15.1%)	246 (49.1%)	104 (20.8%)
Missing your planned appoint-ments?	376 (75.0%)	108 (21.6%)	11 (2.2%)	6 (1.2%)
Leaving the hospital dispen-sary without taking prescribed medicines?	315 (62.9%)	159 (31.7%)	19 (3.8%)	8 (1.6%)
Frequency of non-availability of medication?	254 (50.7%)	212 (42.3%)	33 (6.6%)	2 (0.4%)
Skipping of hypertensive medicines before next visit to clinic i.e 1-3 days?	288 (57.5%)	166 (33.1%)	44 (8.8%)	3 (0.6%)
If you feel good, do you leave your medicines?	248 (49.5%)	170 (33.9%)	80 (16.0%)	3 (0.6%)
If you are sick, do you mistak-enly leave your medicine?	392 (78.2%)	100 (20.0%)	8 (1.6%)	1 (0.2%)
Are you in habit of other patients' prescribed medica-tions?	383 (76.4%)	83 (16.6%)	31 (6.2%)	4 (0.8%)
Is there any role of careless-ness in taking medicines for blood pressure?	227 (45.3%)	150 (29.9%)	110 (22.0%)	14 (2.8%)

Table 3: Hill Bone Scale scoring with adherence level

Adherence level	Frequencies	Percentages
Perfect compliance	52	10.4%
Imperfect compliance	449	89.6%

Table 4: Relationship between demographic features and Hill Bone score

Features		Frequen-cies n=501	Percent-ages	Mean	SD	p-value
Gender	Male	273	54.5	23.839	5.6960	0.432
	Female	228	45.5	23.373	6.0166	
Marital status	Married	392	78.2	23.408	6.0193	0.101
	Unmarried	109	21.8	24.413	5.1067	
Education	Uneducated	118	23.6	23.771	5.6876	0.731
	Primary	101	20.2	23.406	5.1287	
	Matric	75	15.0	23.413	6.4809	
	Inter	73	14.6	23.288	5.4962	
	Masters	118	23.6	24.153	6.3335	
	Others	16	3.2	22.625	6.3757	
Occupa-tion	Unemployed	201	40.1	24.889	5.7177	0.031
	Housewife	72	14.4	23.204	5.8509	
	Student	34	6.8	23.824	5.0720	
	Govt. servant	96	19.2	23.677	6.1155	
	Business	80	16.0	22.775	5.8482	
	Others	18	3.6	26.444	5.1131	
Ethnicity	Pashtoon	200	39.9	23.675	5.5673	0.815
	Baloch	103	20.6	23.320	6.4218	
	Punjabi	92	18.4	24.054	5.8316	
	Urdu	36	7.2	23.722	5.3804	
	Sindhi	37	7.4	24.108	6.0359	
	Others	33	6.6	22.455	6.1089	
Income	No income	269	53.7	23.561	5.8744	0.517
	Less than 5000PkRs.	23	4.6	24.478	5.2818	
	5001-10000 PkRs.	36	7.2	23.667	4.0356	
	10001-15000 PkRs.	26	5.2	25.385	5.8040	
	150001-20000 PkRs.	51	10.2	22.608	5.8209	
	More than 20000 PkRs.	96	19.2	23.656	6.4479	

DISCUSSION:

Our study was community-based and it was carried out in a far of area of Pakistan where literacy level is not much high. It was found that <85% patients are not taking medicines properly for hypertension. The main reasons were multiple doses of medicines, non-affordability, fear of side effects and forgetfulness. These findings were in ac-cordance with studies carried out previously which also showed out of every three patients, two are not taking their medicines properly. [11]

When we compare these results with the data reported by studies done world-wide in which non-compliance is reported to be 45%, the results in our study have shown a greater percentage of non-compliance.[12] Studies carried out in Vietnam and Bangladesh has shown a frequency of non-adherence as 49.8% and 85% respectively.[13,14] The data from Nigeria and Ghana have shown non-compliance to medications in 66%.[15]

In United Kingdom, Canada and Czech Re-public [16,17] there is greater frequency of adherence due to better health care provision, availability of medicines and better public awareness. It has been reported that un-employment, poor income and il-literacy are important factors for poor compliance. These results were also reported in our study.[18]

May tools are available to assess the compli-ance level of drugs in individuals out of which Hill bone scale is easy and important to be used clinically. This scale has been used in different studies successfully to assess poor compliance. In our study, it was also easy to collect data by using this scale.[19]

In sub-Saharan Africa and other such areas non-adherence is responsible for poor control of blood pressure thereby leading to increased car-diovascular morbidity and mortality. [20-22]

STUDY LIMITATION:

It should be carried out over a large population in different areas to improve the impact of study.

CONCLUSION:

Non-compliance is observed to be a major factor in poor control of hypertension and public awareness about compliance is needed. This will lead to reduction in mortality due to cardiovascular pathologies.

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