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ASSESSMENT OF TREATMENT COMPLIANCE AMONG PREVIOUSLY DIAGNOSED HYPERTENSIVE PATIENTS IN TERTIARY CARE HOSPITAL OF WESTERN GUJARAT IN INDIA

Community Medicine

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ABSTRACT

Background: A Burden of diabetes and hypertension is on rise in India. India, being a developing country, has unique problems regarding the treatment compliance which is a serious risk for morbidity and mortality. Hypertension is major risk factors for cardiovascular and cerebrovascular disease. Compliance is a primary determinant of the effectiveness of treatment because poor compliance attenuates optimum clinical benefit and paves the way for complications. **Aim:** To assess the compliance to treatment of hypertension of diagnosed patients and study various factors affecting the compliance of treatment of hypertension. **Materials And Methods:** Cross sectional study conducted in the tertiary care hospital non communicable disease clinic. All the cases of hypertension diagnosed for more than 6 months were included. The data were collected over a period of two months (August -September 2021). All the study participants were interviewed using a semi- structured questionnaire after obtaining informed verbal consent. questionnaire was including details on demography, medical documentation, treatment details and factors assessing the, knowledge about hypertension and compliance towards the disease treatment. **Results:** A total 260 hypertensive participated in this study. According to Morisky8 scale of compliance of treatment of hypertension, 44.23% and 55.77% of participants were having moderate and low compliance, respectively. Males had lower compliance than females. Patients with comorbidities and on multiple medications, longer duration of treatment, senior citizens were factors related to non-compliance. In this study 67.3% of the respondents had comorbidities. Patients having hypertension with other comorbidities were poor compliant on treatment than who had not comorbidities. **Conclusion:** According to Morisky 8 scale compliance of treatment of hypertension, 44.23% and 55.77% of participants were having moderate and low compliance respectively. Males had lower compliance than females. Patients with comorbidities and on multiple medications, longer duration of treatment, senior citizens were factors related to non-compliance.

KEYWORDS

Cardiovascular Diseases, hypertension, knowledge, treatment compliance.

INTRODUCTION

Hypertension is the main risk factor for developing cardiovascular disease. Hypertension is preventable or can be postponed by a group of preventive interventions, like reduction of salt intake, a diet rich in fruits and vegetables, exercise and maintaining a healthy body weight. [1] According to NHFS -5, prevalence of hypertension is 24% and 15.6 % in male and female respectively.[2]Our country is also going through an epidemiological transition facing a double burden of both communicable and noncommunicable diseases (NCDs) and is now heading toward being designated as the "Hypertension capital of the world" too.[3]

Hypertension is the leading modifiable risk factor for mortality worldwide. Controlling blood pressure (BP) through daily, low-cost, medications substantially reduce the negative consequences of hypertension and is one of the most cost-effective ways of reducing mortality. [4] The World Health Organization (WHO) defines adherence to long-term therapy as "the extent to which a person's behaviour - taking medication, following a diet, and/or executing lifestyle changes-corresponds with agreed recommendations from a healthcare provider" [5]

Medication adherence or compliance refers to the act of conforming to the recommendations made by the provider with respect to timing, dosage, and frequency of medication taking[6]. It can be defined as "the extent to which a patient acts in accordance with the prescribed interval and dose of a dosing regimen. Adherence is measured over a period of time and reported as a percentage.[7]

Multiple factors play a significant role in determining the level of adherence to medication among hypertensive patients and these can be grouped into five main domains such as socioeconomic factors, healthcare service–related factors, disease-related factors, therapy-related factors, and patient-related factors.[8] Patients with comorbidities and on multiple medications were at high risk of medication non-adherence. [9]

Patients with a high level of medication adherence were found to have better blood pressure control.[10] Awareness was significantly associated with gender, age, geographical location, occupation, and comorbidity. Blood pressure control was significantly higher among younger patients as compared to older patients and patients with higher level of physical activity.[11] Still, adherence to hypertension treatment is challenging, due to the asymptomatic nature of the disease. Hence, this study aims to assess compliance of antihypertensive treatment and related factor affecting the compliance.

MATERIALS AND METHODS

Study Design And Sampling

This was a cross-sectional Study conducted to determine the compliance rate of antihypertensive medications and analyse factors related to poor medication adherence among hypertensive patients at NCD Clinic in Government district hospital Jamnagar, Gujarat.

By convenient sampling method we considered 260 participants as our sample size. Participant were recruited from NCD clinics of tertiary care hospital. Every third consecutive patient who fits the criteria was included. Patients older than 18 years and diagnosed with hypertension for more than three months were included in this study. Patients having mental retardation, secondary hypertension, younger than 18 years, severe or debilitating illness, dementia and pregnancy conditions were excluded from the study.

Data Collection:

The data were collected using semi structured, pretested questionnaires. Pilot study was done in first 20 participants for clarity and feasibility of study and validation of proforma. Prior informed consent was obtained from all patients after explaining the purpose of the study.

Measurement Of Variables

The questionnaires in data collection tool consists of three main sections. The first part assesses participants' socio-demographic factors, the second part assesses the patients' knowledge about hypertension and the third section collects relevant information about factors affecting medication adherence.

Operational Definition:

To define a case of hypertension, we used Joint national committee criteria 8 of hypertension [12] We used modified BG Prasad's Socioeconomic classification for socioeconomic status[13]. Compliance was estimated by the direct method of self report by patient using Moriskey 8 items medication adherence Questionnaire.[14]

Data Entry And Analysis

Data entry was done in Microsoft excel 2020 and SPSS trial version 22 used for data analysis. Frequencies and percentages were used to assess participants' characteristics. Chi-square test was used to determine the association between demographic, socioeconomic, and clinical factors with medication compliance. The association was considered statistically significant if the P-value was less than 0.05.

Table 1: - Socio-demographic Profile Of Hypertensive Patients.

Variables	Frequency (n)	Percentage (%)
Sex		
Male	105	40.38%
Female	155	59.62%
Age (in completed years)		
31-40	15	5.77%
41-50	50	19.23%
51-60	55	21.15%
61-70	140	53.85%
Residential area (Locality)		
Urban	185	71.15%
Rural	75	28.85%
Religion		
Hindu	205	78.85%
Muslim	55	21.25%
Family size		
<5	45	17.31%
5-6	190	73.08%
>6	25	9.61%
Education		
No Formal Education	55	21.15%
Primary	120	46.15%
Secondary	75	28.85%
Higher Secondary	0	0.0%
Graduation	10	3.85%
Socioeconomic class (Modified BG Prasad classification)		
I (Upper Class)	5	1.92%
II (Upper Middle Class)	60	23.08%
III (Middle Class)	125	48.08%
IV (Lower Middle class)	65	25.00%
V (Lower Class)	5	1.92%
Habit of Tobacco		
Yes	160	61.54%
No	100	38.46%

Table 2: - Profile of Hypertensive patients.

Variables	Frequency (n)	Percentage (%)
Knowledge about Hypertension		
Symptoms	230	88.46%
Causes or Reasons	225	86.54%
Knowing Medication name	15	5.77%
Knowing Complication	115	44.23%
Duration of Treatment (in Years)		
<2	65	25.00%
2-5	80	30.77%
>5	115	44.23%
Types of Treatment Therapy		
Monotherapy	50	19.23%
Polytherapy	210	80.77%
Comorbidities in Patients		
Diabetes	146	56.16%
Arthritis	10	3.85%
CVD	14	5.38%
Other comorbidities	5	1.92%
No comorbidities	85	32.69%
Side effects of Medicine		
Yes	0	0.0%
No	260	100%
Severe Emergency Conditions (MI, Stroke)		
Yes	5	1.92%
No	255	98.08%
Regular Follow-up		
Yes	260	100.0%
No	0	0.0%
Salt Restriction Diet		
Follow	25	9.62%
Not Properly Follow	235	90.38%
Regular Physical Activity		
Yes	145	55.17%
No	115	44.23%
Compliance of Treatment according to Morisky Scale		
High (0)	0	0.00%
Moderate (1 or 2)	115	44.23%
Low (>2)	145	55.17%
Score of Knowledge Of hypertension		
Good Score (>6)	34	13.07%
Poor Score (4-6)	178	68.46%
Very poor score (< 4)	38	18.46%

Table 3: - Association Between Various Factors And Compliance Of Treatment.

Variables	Moderate Compliance (%) (n=115)	Low Compliance (%) (n=145)	Chi-square value (χ^2)	p-value
Sex				
Male	25 (23.81%)	80 (76.19%)	χ^2=29.777	P<0.001*
Female	90 (58.06%)	65 (41.94%)		
Age (in completed years)				
31-40	15(100.00%)	0 (0.00%)	χ^2=32.28	P<0.001*
41-50	30 (60.00%)	20 (40.00%)		
51-60	25 (45.45%)	30 (54.55%)		
>60	45 (32.14%)	95 (67.86%)		
Residency (Locality)				
Urban	80 (43.24%)	105(56.76%)	χ^2=0.254	P=0.614
Rural	35 (46.67%)	40(53.33%)		
Religion				
Hindu	65 (23.81%)	40(76.19%)	χ^2=61.616	P<0.05*
Others	50 (58.06%)	5(41.94%)		
Family size				
<5	15 (33.33%)	30(66.67%)	χ^2=4.706	p=0.0950
5-6	85 (44.74%)	105(55.26%)		
>6	15 (60.00%)	10 (40.00%)		
Education				
Up to primary	75 (42.86%)	100 (57.14%)	χ^2=0.409	P=0.502
Secondary and above	40 (47.06%)	45 (52.94%)		
SE Status				
I	30 (46.15%)	35 (53.85%)	χ^2=0.154	P=0.926
II				
III	55 (44.00%)	70(56.00%)		
IV	30 (42.86%)	40 (57.14%)		
V				
Personal Habits (Smoking, Chewing)				
Yes	80 (50.00%)	80 (50.00%)	χ^2=5.613	P=0.017*
No	35 (35.00%)	65 (65.00%)		
Duration of Treatment (in Years)				
<2	25 (83.33%)	5 (16.67%)	χ^2=36.885	P<0.001*
2-5	60 (52.17%)	55(47.83%)		
>5	30 (26.09%)	85(73.91%)		
Types of Therapy				
Monotherapy	35 (70.00%)	15 (30.00%)	χ^2=16.66	P<0.001*
Polytherapy	80 (38.10%)	130 (61.90%)		

Comorbidities				
Present	70 (40.00%)	105 (60.00%)	χ^2=3.884	P=0.0487*
Absent	45 (52.94%)	40 (47.06%)		
Following Physical Activity				
Yes	70 (48.28%)	75 (51.72%)	χ^2=2.175	P=0.140
No	45 (39.13%)	70 (60.87%)		

RESULTS:

In our study, about 53.85% of the participants were older than 60 years. Most of the participants were Females (59.62%) and Hindu (78.85%). The majority of participants had primary (46.15%) and secondary (28.85%) education and 21.15% of participants had no formal education. Most of the participants (73.08%) had family size of 5 or 6. Most of the participants (48.08%) were in Socioeconomic class 3 as per Modified B. G. Prasad Socioeconomic scale. About three-fourth of participants were living in Urban areas. About two-third of participants had history of tobacco smoking.

Table 2 represents the knowledge regarding hypertension participants, they were having knowledge about symptoms (88.46%), about causes (86.54%), about complication (44.23%) and their medications (5.77%). Majority of participants (44.23%) were having history of greater than 5 years of duration of treatment.

80.77% of participants were having history of polytherapy treatment. Nearly one-third of the respondents in this study had no comorbidities while two-thirds reported having one or more comorbidities. Out of 260 participants 1.92% were having history of severe emergency conditions like MI, Stroke. Majority of respondents were not following salt restricted diet 90.38% and 44.23% were not having physical activity.

According to Morisky 8 scale of compliance of treatment of hypertension 44.23% and 55.77% of participants were having moderate and low compliance respectively but we got 0% high compliance of treatment among participants. In present study, we found association between compliance of treatment and sociodemographic factors of patients that exhibited significant statistical association with age, gender, religion and income. we also observed significant association between treatment compliance and patients' habit of smoking (χ^2=5.613, p=0.017) and salt restriction (χ^2=14.346, p<0.001).

As shown in table 3, we found significant association between compliance and type of therapy of treatment patients who had on monotherapy were more compliant than those who had poly therapy (χ^2=16.665, p<0.001). We also observed that patients those who had been on treatment since long duration thy were more compliant on treatment then those who had been recently started (χ^2=16.665, p<0.001). Patients having hypertension with other comorbidities were poor compliant on treatment than who had not comorbidities (χ^2=3.884, p<0.05).

DISCUSSION

In present study, overall treatment compliance was 44.23% and reasons for the not compliance to the treatment were forgetfulness 50%, relief of symptoms 5.76% and travelling 3.84%. As per a study conducted in Mumbai, the adherence rate was found to be 39.4%[15]

Out of 260 participants, females were more compliant (58.06%) than males (23.81%). Similar results also found in study done by Sneha et al in which high compliance was observed in 69% females as compared to males (31%).[16] The possible reason for the same could be their housewife occupation and more awareness and health consciousness among females. In a study by J Venkatachalam, adherence was slightly higher among female (25.5%) respondents than male respondents (22.6%).[17]

Our study observed that treatment compliance was found to be higher in age group 31-40 years compared to other age groups. According to a study by Sneha et al, compliance was slightly higher in age group above 50 years.[16]

Our study observed that hypertensive patients with monotherapy had high compliance (70%) than those who were on polytherapy (80%). It might be due to many numbers of tablets likely to be increase forgetfulness or simply due to gastritis. A study conducted by Fahad M. Algabbani in Saudi arabia showed that patients taking more than 4 drugs had low compliance than who taking fewer drugs.[18]

We observed that duration of treatment affects treatment compliance. It was higher in those patients who were on anti-hypertensive therapy for less than two years than those for more than two years. (< 2 years) A similar kind of study conducted by Amrita Sarkar at el also found similar results in her study. She observed that anti-hypertensive patients who had hypertension for several years had lower compliance.[19] Our study revealed that compliance is high in those participants having no comorbidities. In contrast our findings, a study conducted by zahara sadatt et observed no difference in compliance among patients with and without co-morbidities.[20]

CONCLUSION:

According to Morisky 8 scale compliance of treatment of hypertension, 44.23% and 55.77% of participants were having moderate and low compliance respectively. Males had lower compliance than females. Patients with comorbidities and on multiple medications, longer duration of treatment, senior citizens were factors related to non-compliance.

Limitation:

As the study is a hospital based cross-sectional study, results cannot be generalized in community at large. Further community based quantitative and qualitative studies can be planned to understand reasons behind poor treatment adherence of hypertensive patients.

Recommendation

- There is a need to motivate elderly patients about importance of adherence to polytherapy and inform about adverse consequences of poor adherence. The caregiver or relatives of patients should be counselled about importance of adherence of treatment to avoid future complications.
- Clinicians should prescribe combination pills if possible, to reduce pill burden and thereby improving adherence.
- Apart from treating a patient, clinician should be a good counsellor and motivator, and should communicate with the patient or his caregiver about the significance of treatment compliance.

REFERENCES:

1. Sverre E Kjeldsen Hypertension and cardiovascular risk: General aspects, Pharmocol Res 2018.
2. National family health survey 5. Available at ;http://rchiips.org/nfhs/factsheet_NFHS-5.shtml. Accessed on 12 August 2021.
3. Worldwide trends in hypertension prevalence and progress in treatment and control; available at ; https://doi.org/10.1016/ S0140-6736(21)01330-lancet, 390 (2017). Accessed on August 24, 2021.
4. Mohan S et al. Time to effectively address hypertension in India. Indian J Med Res. 2013;137:627–31
5. Bramley TJ, Gerbino PP, Nightengale BS, Frech-Tamas F. Relationship of blood pressure control to adherence with antihypertensive monotherapy in 13 managed care organizations. J Manag Care Pharm. 2006.
6. Nikkil Sudharsanan et al.Hypertension knowledge and treatment initiation, adherence, and discontinuation among adults in Chennai, India: a cross-sectional study, BJM open January 2021.
7. Gosmanova EO and Kovesdy CP. Adherence to antihypertensive medications: is prescribing the right pill enough? Nephrol Dial Transpl 2014; 30(10): 1649–1656.
8. Cramer JA, Roy A, Burrell A, et al. Medication compliance and persistence: terminology and definitions. Value Health 2008; 11(1): 44–47.
9. Agnieszka Pluta.Acceptance of Illness and Compliance with Therapeutic Recommendations in Patients with Hypertension. Int J Environ Res Public Health. 2020 Sep.
10. Dhar L, Dantas J and Ali M. A systematic review of factors influencing medication adherence to hypertension treatment in developing countries. Open J Epidemiol 2017; 07: 211–250.
11. Saeed AA, Al-Hamdan NA, Bahnassy AA, Abdalla AM, MAF A, Abuzaid LZ. Prevalence, awareness, treatment, and control of hypertension among Saudi adult population: A national survey. Int J Hypertens. 2011,[cited 2020May 4].
12. Joint national committee 8 Classification of hypertension .caitliniacobaccirnmsn/a-little-about-myself/practicum-iv-spring-2017.Accessed on month 26 august 2021.
13. Modified BG Prasad Classification. Available at https://iapsmupuk.org/journal/index.php/IJCH/article/download/1480/1026 ;Accessed on 24 august 2021.
14. Compliance criteria morisky scale. Available at https://www.google.com/url,www.researchgate.net,FMAQ-Medication-Adherence; accessed on 25 august 2021.
15. Ayushi Jayesh Shah et al, Factors affecting compliance to antihypertensive treatment among adults in a tertiary care hospital in Mumbai Indian journal of community medicine Year: 2018 | Volume: 43 | Issue: 1 |
16. Sneha D. Mallya et al Assessment of treatment adherence among hypertensive patients in a coastal area of Karnataka, India, International Journal of Community Medicine and Public Health.2016 Aug;3(8):1998-2003
17. J Venkatachalam1 Determinants of patient's adherence to hypertension medications in a rural population of Kancheepuram District in Tamil Nadu, South India, Indian journal of community medicine, Year: 2015 | Volume: 40 | Issue: 1|
18. Fahad M. Algabban.Treatment adherence among patients with hypertension: findings from a cross-sectional study.PMC Clin Hypertens. 2020
19. Amrita sarkar et al compliance to Antihypertensive Therapy and its Predictors: A Cross-sectional Study in Western Coastal Region of India. Community Medicine Section
20. Zahra Saadat et al . Adherence to Antihypertensives in Patients With Comorbid Condition. Nephrourol Mon. 2015.