

## A Cross-Sectional Study To Assess The Drug Adherence And Awareness Of Hypertension Among Hypertensive Stroke Patients In A Selected Hospital, Bangalore

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### ABSTRACT

**Introduction:** Hypertension is the most prevalent modifiable risk factor for cardiovascular diseases and stroke. Among many factors, low adherence to anti-hypertensive drugs is the main contributing factor for poor control of blood pressure among hypertensive patients. The aim of this study is to assess the awareness on hypertension, level of adherence to anti-hypertensive medication and to assess the risk factors that led to stroke among the hypertensive patients in a selected hospital at Bangalore.

**Methods:** A cross-sectional approach with consecutive sampling, 30 hypertensive patients with stroke from Baptist hospital were selected between March 2024 to August 2024. A standardized questionnaire was used to collect data.

**Results:** Among 30 participants, nearly half of them i.e., 46.6% were aged between 51-60 years, 70% of the participants had a family history of hypertension, 73.3% of the participants had Ischemic stroke and only 7% had a positive family history of stroke. The duration between the diagnosis and occurrence of stroke was 1-5 years among 70% of participants. 36.6% did not go for a review in the past 6 months after being diagnosed with hypertension. According to the Morisky drug scores only 16.6% were moderately adherent to prescribed anti-hypertensive treatment compared to 83.3% who were poorly adherent. The leading reason for poor drug adherence were lack of knowledge of hypertensive treatment (30%), resistance to start medication (23.3%), financial implication (20%), fear of side effects (13.3%), belief in natural remedies (10%) and to avoid pill load (3.3%).

**Discussion:** Adherence to anti-hypertensive drugs remains a challenge. This has attributed to a lack of adequate knowledge and resistance to start medications. Findings suggest and recommend that there is an urgent need on emphasizing hypertension awareness, screening for hypertension, importance of BP control and strict drug adherence in stroke prevention.

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**Keywords:** Hypertension, stroke, anti-hypertensive drugs, adherence, awareness.

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### 1. INTRODUCTION

Hypertension is the most prevalent modifiable risk factor for cardiovascular diseases and stroke. Most people who have had a first stroke also had high blood pressure.<sup>1</sup> Approximately 80% of strokes may be prevented when necessary precautions and actions are taken that are derived from knowledge of the disease's risk factors.<sup>2</sup> Among many factors, low adherence to anti-hypertensive drugs is the main contributing factor and growing concern for poor control of blood pressure in hypertensive patients. The aim of this study is to assess the awareness on hypertension, level of adherence to anti-hypertensive medication and to assess the risk factors that led to stroke among the hypertensive patients in a selected hospital at Bangalore.

**Methods**

In a cross-sectional study design we consecutively recruited 30 known hypertensive stroke subjects in a selected hospital, Bangalore. The study inclusion criteria were; hypertensive patients with stroke above 20 years of age. We excluded patients with Transient Ischemic attack and patients with brain tumors and metastases. Over a period of 3 months (from Aug 2024 to Oct 2024) we consecutively enrolled hypertensive subjects admitted with a diagnosis of acute stroke. Using a standardized Pre-tested questionnaire demographic data and lifestyle history such as smoking, alcohol consumption and level of physical activity were obtained. The Morisky 8-item medication adherence questionnaire was used to assess the level of adherence to anti-hypertensive medication by the participants. The questionnaire has a total of eight questions with a score of one allocated to each question. Participants are categorized as having high adherence if they score 0, 1. 2 as medium adherence while those above 2 are categorized as having low adherence.

**Ethical Consideration and Informed Consent**

Written informed consent was obtained from all study participants. Received approval for conducting the study in the selected hospital.

**2. RESULTS**

- Section A: Demographic characteristics of study participants
- Section B: Follow up for Blood pressure and lifestyle history
- Section C: Anti-Hypertensive Medication Adherence According to Morisky scale
- Section D: Reasons for Poor Drug Adherence

**Table 1: Demographic Characteristics of Study Participants**

n=30			
S. No.	Demographic Variables	Frequency	Percentage
1	Patient's age		
	<40 years	6	20
	41-50 years	4	13.3
	51-60 years	14	46.6
	>60 years	6	20
2	Gender		
	Male	21	70
	Female	9	30
3	Educational attainment		
	Illiterate	14	46.6
	High school	8	26.6
	Graduate	8	26.6
	Post graduate	0	0
4	Marital status		
	Married	25	83.3
	Unmarried	3	10
	Widowed	2	6.6
5	Occupational status		

	Buisness	7	23.3
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**Table 1: Contd.,**

	Daily wages	6	20
	Government employee	3	10
	Retired	5	16.6
	Home maker	9	30
6	Family history of Hypertension		
	Yes	21	70
	No	9	30
7	Family history of stroke		
	Yes	7	23.3
	No	23	76.6
8	Type of stroke		
	Ischemic	22	73.3
	Hemorrhagic	8	26.6

Table 1 Illustrates demographic characteristics of study participants. Nearly half of the participants 46.6% were aged between 51-60 years and illiterate, about 70% of study participants were male. 83% were married, 30% were home maker. 70% of participants had family history of hypertension, 73.3% had Ischemic stroke and only 7% had a positive family history of stroke.

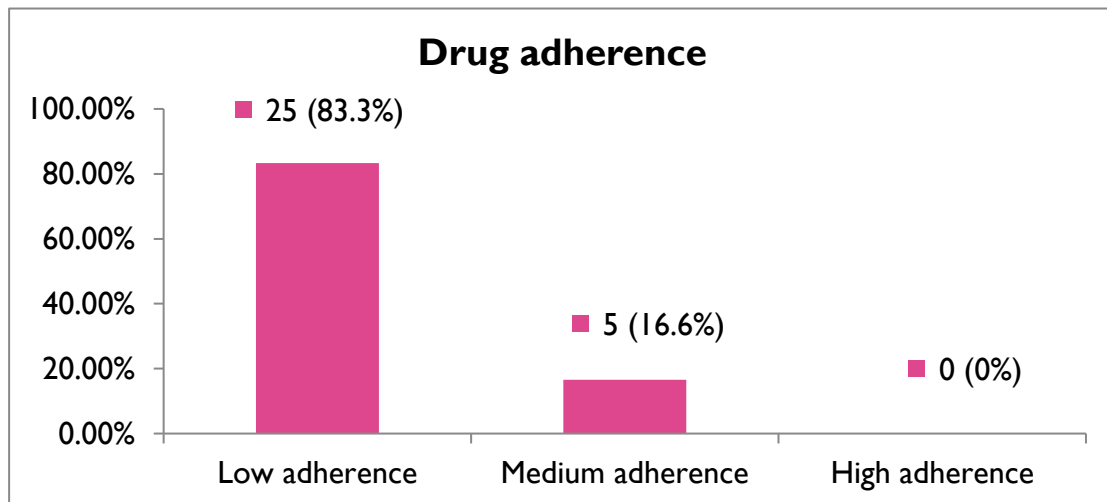
**Table 2: Follow up of Blood Pressure and Lifestyle History**

n=30			
S. No.	Follow up for Blood pressure and Lifestyle	Frequency	Percentage
1	Duration since diagnosed with high blood pressure		
	a) 1 – 5 years	21	70
	b) 6 – 10 years	4	13.3
	c) > 10 years	5	16.6
2	Routine care for Hypertension		
	a) Yes	19	63.3
	b) No	11	36.6
3	Frequency of review		
	a) Not reviewed	11	36.6
	b) Every 3 months	4	13.3
	c) Every 6 months	8	26.6
	d) > 6 months	7	23.3
4	History of smoking		

	a) Yes	18	60
	b) No	12	40
5	History of alcohol consumption		
	a) Yes	15	50
	b) No	15	50
6	Regular Exercise		
	a) Yes	9	30
	b) No	21	70

Table 2 depicts follow up for Blood pressure variable and lifestyle history. The duration since hypertension diagnosis to the stroke incidents among 70% study subjects were 1-5 years. 63.3% were regularly attending routine care for hypertension. 36.6% had not reviewed their BP in the past 6 months after being diagnosed with hypertension. 60% had history of smoking and 50% had history of alcohol consumption. Only 30% of study participants were performing regular exercise.

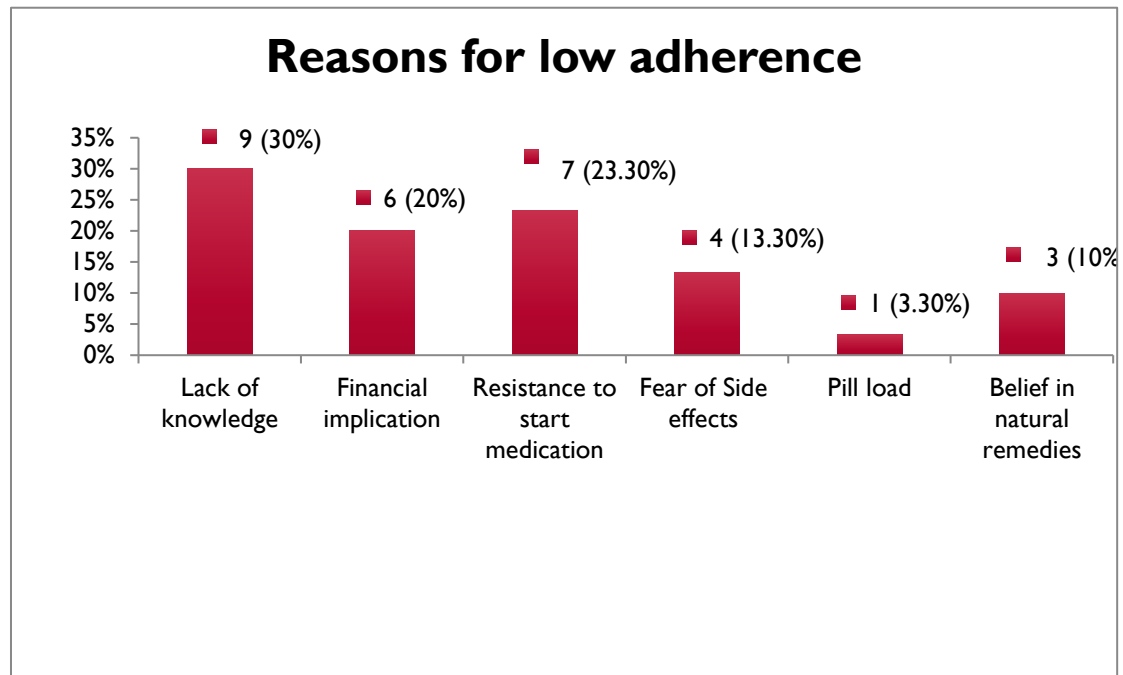
n=30



**Figure 1: Bar Diagram Representing Anti-Hypertensive Medication Adherence According to Morisky Scale.**

The data presented in figure 1 reveals that only 16.6% were moderately adherent to their prescribed anti hypertensive treatment compared to 83.3% who were poorly adherent according to the Morisky drug scores.

n=30



**Figure 2: Bar Diagram Representing Reasons for Low Drug Adherence among the Study Participants**

The data presented in figure 2 reveals that the leading reasons for poor drug adherence were lack of knowledge of hypertensive treatment (30%), resistance to start medication (23.3%), financial implications (20%), fear of side effects (13.3%), belief in natural remedies (10%) and to avoid pill load (3.3%).

### 3. DISCUSSION

This cross-sectional study of hypertensive patients with stroke emphasizes the lack of awareness of hypertension and nearly 83.3% were poorly adherent to anti-hypertensive medication. Adherence to drugs still remains a challenge. One-third of the participants 36.6% were not regularly attending routine medical care after being diagnosed with high blood pressure, this would have increased the BP levels subsequently increasing the risk of strokes. The leading reason for poor drug adherence were lack of knowledge on hypertensive treatment (30%), resistance to start medication (23.3%), financial implication (20%), fear of side effects (13.3%), belief in natural remedies (10%) and to avoid pill load (3.3%). Hypertension awareness and health education is needed to support this problem.

### 4. CONCLUSION

Improper routine care for hypertension and poor adherence to anti-hypertensive drugs are crucial factors among hypertensive patients with stroke. Adherence to anti-hypertensive drugs remains a challenge. This has attributed to a lack of adequate knowledge and resistance to start medications. Findings suggests there is an urgent need on emphasizing hypertension awareness, screening for hypertension, importance of BP control and drug adherence in stroke prevention.

#### *Research outlook and Future research*

There is also need for larger studies and focus on other risk factors, co-morbidities and need to address drug adherence as a major issue in hypertension management.

### REFERENCES

- [1] Stroke and high blood pressure. American stroke association. Oct 2023. <https://www.stroke.org/en/about-stroke/stroke-risk-factors/high-blood-pressure-and-stroke>.
- [2] Vincent-Onabajo G, Mshelia Y J, Abubakar U, et al. Knowledge of stroke risk factors among individuals diagnosed with hypertension and diabetes: a hospital-based survey. *BrJ Med Med Res*. 2015;10:1–8.
- [3] Mugwano I, Kaddumukasa M, Mugenyi L, Kayima J, Ddumba E, Sajatovic M, Sila C, DeGeorgiM, Katabira

- E. Poor drug adherence and lack of awareness of hypertension among hypertensive stroke patients in Kampala, Uganda: a cross sectional study. *BMC Res Notes*. 2016 Jan 2;9:3. doi: 10.1186/s13104-015-1830-4
- [4] Dar NZ, Khan SA, Ahmad A, Maqsood S. Awareness of Stroke and Health-seeking Practices among Hypertensive Patients in a Tertiary Care Hospital: A Cross-sectional Survey. 2019 May 28;11(5). doi: 10.7759/cureus.4774
- [5] Morisky DE, Ang A, Krousel-Wood M, Ward HJ. Predictive validity of a medication adherence measure in an outpatient setting. *J Clin Hypertens (Greenwich)* 2008;10(5):348–54. doi: 10.1111/j.1751-7176.2008.07572.x.
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