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Research Article

Assessment of patients' knowledge of their antihypertensive treatment at the mother and child hospital ''Le Luxembourg'', Mali

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Abstract

High blood pressure is a major public health problem regarding its prevalence and the extent of its morbidity and mortality and disability after cerebral vascular accident. Effective management requires full adhesion of the patient to the recommendations of medical staff. The adhesion requires a certain level of disease and treatment knowledge. There is a good relationship between the understanding of the disease and its treatment by the patient and good compliance and therefore the success of the treatment. We conducted a prospective cross-sectional study in the Cardiology Department of mother and child hospital of Bamako August to October 2023 to assess patients' knowledge of their antihypertensive treatment. The case report form was used for data collection, entered to Excel and analyzed using SPSS software version 25.0. A total of 211 participants were included in our study. Most of them were over 65 years of age (45%), followed by the 46 to 65 age group. Moderate hypertension was found in 21.3% of patients. All patients on a strict diet were taking angiotensin converting enzyme inhibitors (21.85%), followed by diuretics and calcium channel blockers (20.85%). 40.76% of participants had a good knowledge of cardiovascular risk factors. More than half of the participants (53.6%) had an intermediate level of knowledge about their treatment, and 68.2% had poor knowledge of medication adherence. A significant association (p = 0.03) between good knowledge of cardiovascular risk factors and poor compliance was found. Participants with good knowledge of their antihypertensive treatment were not adhering well to their treatment (p = 0.002). This study reports poor adherence to treatment among patients with hypertension under observation in the cardiology unit in Luxembourg, Mali.

Keywords: Knowledge, Patients, Antihypertensive treatment

INTRODUCTION

High Blood Pressure (HBP) is a significant worldwide public health issue that affects over one-third of adults and is increasing in prevalence, especially in low and middle-income countries [1]. Between 1990 and 2019, the prevalence of hypertension will double, rising from 650 million to 1.3 billion people[1]. Defined as having a blood pressure of 140/90 mmHg or higher, this widespread condition can result in stroke, heart attack, heart failure, kidney damage, and various other health complications [2].

HBP is a major risk factor for the development of cardiovascular diseases affecting around 20% of the world's population. It is a major contributor to worldwide morbidity and mortality and hence poses a huge socioeconomic burden [1].

In Africa, the proportion of people suffering HBP has risen from 28% to 40% in 10 years, and according to epidemiological projections, there will be 150 million hypertensive in 2025 [3].

In Mali, several studies have shown that hypertension is the leading cause of cardiovascular disease in hospitals. In the department of cardiopathy, the HBP represented 43.9% amongst patients received during the consultations at Gabriel Touré Hospital [2] and 37% at Point G [4]. Hypertension is a major public health problem. It often leads to long-term multi Drug with drug combinations that increase the risk of iatrogenic events and hospitalization [5].

Randomized clinical trials conducted in high-income countries have shown that antihypertensive medication therapy reduces blood pressure and cardiovascular, cerebrovascular and renal morbidity and mortality [4]. Various antihypertensive drug classes including calcium channel blockers (CCB), diuretics, renin–angiotensin system (RAS) blockers, beta blockers or centrally active drug can be used alone or in combination according to

international guidelines to achieve blood pressure control [2, 6].

Effective management of this pathology requires the full adhesion of the patient to the recommendations of the medical staff. The patient must have a certain level of understanding of the disease and its treatment's A good knowledge of the disease and its treatment by the patient is an indicator of good compliance and therefore of the success of the treatment.

In light of the critical importance of knowledge in the management of hypertension, studies have shown that providing patients with education and empowerment leads to improved adherence to medication and, therefore, more favorable treatment outcomes [7-11].

The lack of patient cooperation decreases their chances of reducing the total risk of cardiovascular diseases by even 40% [12]. Medication adherence is a key factor in the control of high blood pressure

Scientific literature does not offer sufficient data of patient knowledge on hypertension treatment adherence and efficacy in Mali

To improve the management of hypertension at the mother and child hospital ''Le Luxembourg'', we set out to assess the knowledge of hypertensive patients followed at this hospital about their pathology and their drug treatments. The results of this study will be the basis for suggestions and recommendations for the improvement of patients' knowledge about this disease.

METHODS

The study was carried out at the mother and child hospital ''Le Luxembourg' of Bamako from August to October 2023. It was a prospective cross-sectional study in the Cardiology Department of the hospital. This study involved patients who were being treated with antihypertensive drugs in the cardiology department. All patients with antihypertensive medication and followed for more than one year and who agreed to take part in the study were included. We performed an exhaustive sampling by including all patients who responded to the study criteria.

An administrative letter explaining the aim of the study was sent to the Hospital Head Manager and the head of Cardiology Department of mother and child hospital ''Le Luxembourg' 'before the start of the study. A survey sheet was designed and validated before study began. Prior to the interview, individual consent was obtained from each patient. A series of semi-structured questions were then asked of the hypertensive patients in face-to-face mode. Participants were thanked for their time after completing a survey form. Before being entered into the database, the survey sheets were stored in a safe place.

Data collection and analysis

Data were collected on a case report form and entered to Excel and analyzed using SPSS software version 25.0. The descriptive analysis was performed to determine the proportion of patient's characteristics and the bivariate analysis to compare their knowledge level according to the compliance to the treatment. The Pearson test was used to compare proportions, and differences were considered statistically significant when $p < 0.05$.

Ethics Approval

Our study protocol was approved by the Ethics Committee of the University of Sciences, Techniques and Technologies of Bamako (USTTB), Mali.

The anonymity and confidentiality of the information collected have been preserved. Information on treatment knowledge (indications, dosage, contraindications and adverse effects) and treatment adherence (missed doses and treatment discontinuation) was collected and coded according to the following criteria.

We scored the responses of participants to the questions related to treatment knowledge (indications, dosage, contraindications and adverse effects) (out of 3) and compliance treatment (missed doses and treatment discontinuation) (out of 3). The level of knowledge and compliance treatment were categorized in table I.

Table 1. Response score for the level of knowledge and compliance treatment

Knowledge treatment (indications, dosage, contraindications and adverse effects)	
Levels of knowledge treatment	**Score out of 3**
Good	3
Itermediary	2
Poor	0-1
Compliance treatment (missed doses and treatment discontinuation)	
Levels of compliance treatment	**Score out of 3**
Good	3
Intermediary	2
Poor	0-1
Knowledge on cardiovascular risk factors	
Levels of Knowledge on cardiovascular risk factors	**Score out of 2**
Good	2
Intermediary	1
Poor	0

RESULTS

Our study included a total of 211 participants, the majority of patients were aged over 65 (45%), followed by the 46-65 age group. With a ratio of 1.1, women predominated (52.1%). More than half of participants (53.6%) had a good knowledge of the circumstances of hypertension detected. The majority of patients were on angiotensin I converting enzyme (ACE) inhibitors (21.85%), diuretics (20.85%), calcium channel blockers (20.85%) and beta blockers (16.59%). Only 22.7% of hypertensive patients had a good knowledge of their treatment. More than half of hypertensive patients (53.6%) had an intermediate level of knowledge about their treatment. Good compliance was found in only 24.6% of hypertensive patients. By contrast, 68.2% had poor compliance. The proportion of hypertensive patients with good knowledge of cardiovascular risk factors was 40.76%. A significant association ($p = 0.02$) between good knowledge of cardiovascular risk factors

and poor compliance was found. Participants with good knowledge of their antihypertensive treatment were not adhering well to their treatment (p = 0.001).

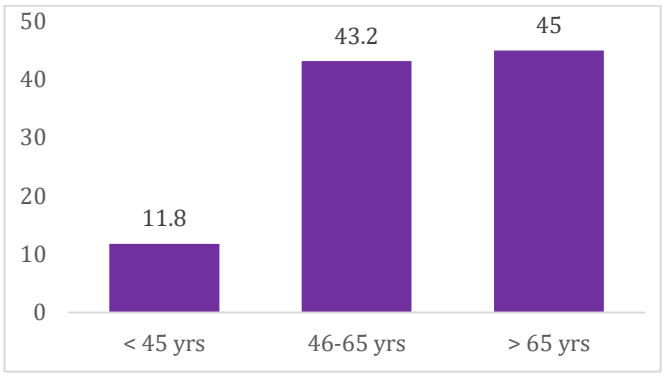

Figure 1: Distribution of participants by age group

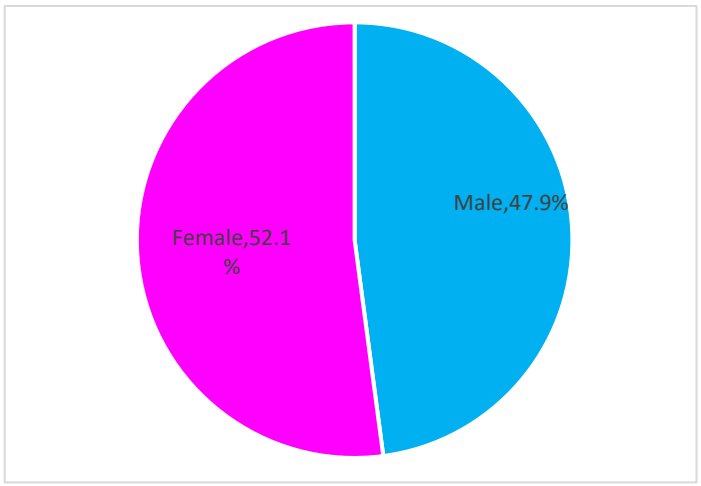

Figure 2: Distribution of participants by gender

Table 2: Distribution of participants according to knowledge of the circumstances of hypertension detection

Knowledge of the circumstances of hypertension detection	Frequency	Percentage (%)
Good	113	53.6
intermediary	60	28.44
Poor	38	17.96
Total	211	100.0

Table 3: Distribution of participants according to their knowledge of cardiovascular risk factors

Level of knowledge of cardiovascular risk factors	Frequency	Percentage (%)
Good knowledge	86	40.76
Intermediary knowledge	79	37.44
Poor knowledge	46	21.8
Total	211	100.0

Table 4: Distribution of participants according to their knowledge of hypertension treatment

Level of knowledge of hypertension treatment	Frequency	Percentage (%)
Good knowledge	48	22.7
Poor knowledge	50	23.7
Intermediary knowledge	113	53.6
Total	211	100.0

Table 5: Distribution of participants according to the type of antihypertensive treatment prescribed

Type of antihypertensive prescribed	Frequency	Percentage (%)
Diuretics	44	20.85
Angiotensin I converting enzyme (ACE) inhibitors	46	21.80
Calcium channel blockers	44	20.85
Beta blockers	35	16.59
Angiotensin II Receptor Antagonists (AIIRA)	13	6.16
Central antihypertensives	5	2.28
Fixed combination of antihypertensive drugs	24	11.37
Total	211	100.0

Table 6: Distribution of participants according to compliance with hypertension treatment

Therapeutic compliance	Frequency	Percentage (%)
Good	52	24.6
Intermediary	15	7.1
Poor	144	68.2
Total	211	100.0

Table 7: Relationship between adherence to treatment and level of knowledge of cardiovascular risk factors

		Therapeutic compliance			
		Yes	No	Total	P
		n (%)	n (%)	n (%)	
Knowledge of cardiovascular risk factors	Poor	19 (41.3)	27 (58.7)	46(100)	
	Intermediary	29 (36.7)	50 (63.3)	79 (100)	0,61
	Good	19 (22.1)	67 (77.9)	86 (100)	
					0,02
	Total	67 (31.8)	144 (68.2)	211 (100)	

Table 8: Relationship between adherence to treatment and level of knowledge about the treatment of hypertension

		Therapeutic compliance			
		Yes	No	Total	P
		n (%)	n (%)	n (%)	
Level of knowledge about the treatment of hypertension	Poor	17 (34.0)	33 (66.0)	50 (100)	-
	Intermediary	46 (40.7)	67 (59.3)	113 (100)	0.41
	Good	4 (8.3)	44 (91.7)	48 (100)	0.001
	Total	67 (31.8)	144 (68.2)	211 (100)	

DISCUSSION

This study enrolled a total of 211 participants, aged over 45 years (88.1%). This finding shows that the prevalence of HBP tends to increase with age as reported in the literature [13]. Women patients were more frequent with 52.1%, with a sex ratio of 1.1. This predominance of women may be explained by the fact that pregnancy was the most common circumstance in which the disease was detected and that the study site had a gynecological and obstetric service. This predisposition of urban women to develop hypertension more frequently appears to be linked to the use of hormonal contraceptives containing high levels of estrogen [14], The acquired and physiological obesity and the abuse of anorectics and non-steroidal anti-inflammatory drugs [14].

All patients on a strict diet were mainly taking angiotensin I-converting enzyme inhibitors (21.85%), diuretics (20.85%), calcium channel blockers (20.85%) and beta blockers (16.59%). According to the Eighth Joint National Committee, the first recommended line of treatment for black hypertensive patients is diuretics or calcium channel blockers alone or in combination [15]. Surprisingly, angiotensin I-converting enzyme inhibitors were the most prescribed treatment alone before diuretics even though these are less effective in reducing blood pressure in black hypertensive patients [16]. The high proportion of angiotensin I-converting enzyme inhibitors prescriptions (usually not recommended for black patients except for compelling indications including heart failure, postmyocardial infarction, diabetes, proteinuric nephropathy) suggests that continuing education of physician could be an avenue for improved care.

Most of participants (53.6%) had a good knowledge of the circumstances of hypertension detected. The proportion of participants with good knowledge of cardiovascular risk factors was 40.76%. A similar result was reported by Odunaiya et al in Nigeria (39,1%) [17]

but lower than that reported by Sloma et al. in Sweden (67,6%) [18].

In our study, 68.2% of hypertensive patients had poor compliance. This rate is higher than those reported by Sinomono et al. in Congo-Brazzaville (23.7%) [19], Lulebo et al. in the DRC (54.2%) [20], Enslin et al. in South Africa (41.9 %) [21] and Estrada et al. In Espain (56.6%) [22]. However, a study carried out in Ethiopia by Bekele et al. in 2019 reported a higher rate of non-compliance (89.98%) [23].

We found a significant association (p = 0.02) between good knowledge of cardiovascular risk factors and poor compliance. A positive association between patient knowledge of hypertensive complications and compliance was shown by Ghembaza et al. in 2014 [24] and Soylemez et al in 2023 [25]. However, a negative association between patients' knowledge of the complications of hypertension and adherence to treatment has been reported in Ireland in 2018 [26] and Poland in 2023 [27]. We found that a significant proportion of participants with good knowledge of their antihypertensive treatment were not adhering well to their treatment (p = 0.001).

Knowledge of antihypertensive treatment, Treatment adherence, knowledge of the complications of hypertension and disease stability depend on a number of factors. The economic and geographical accessibility of medicines, as well as traditional and religious beliefs and the quality of the prescriber (general practitioners and cardiologists), all play a crucial role in treatment adherence. A focus group survey could help to identify other factors involved in patients' non-adherence to hypertension treatment

CONCLUSION

In this study, hypertensive patients had poor adherence to treatment. Levels of knowledge about treatment, cardiovascular risk factors, and circumstances of discovery were generally low. Good knowledge of cardiovascular risk factors was not associated with good adherence.

Ethics Approval: Our study protocol was approved by the Ethics Committee of the Faculty of Medicine and Pharmacy of the University of Sciences, Techniques and Technologies of Bamako (USTTB), Mali

Consent for Publications: All authors read and approved the final manuscript.

Conflict of Interest: Karim Traoré, Bourama Keita, Mahamadou Ballo, Drissa Konaté, Seidina AS Diakité, Sory I. Diawara, Abdouramane Traoré and Ibrahim Sanogo have no conflict of interest that are directly relevant to the content of this article

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