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# Pharmaceutical Analysis of the Prescription of Antihypertensive Dispensed in Pharmacies in the District of Bamako

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**Abstract:** ***Antihypertensive accounted for 53.1% of prescribed drugs and no hypertensive medications, and half of the hypertensive patients were female with 59.4% only 5.6% of prescriptions included the age of the patients. The dosage was almost on all prescriptions with 98.2%. The name, the qualification and the seal of the prescriber were quickly on all the prescriptions oneself 95.3%; 94.4%; 94.9%. In our 234 orders received, 213 were AMO prescriptions ie 91% with 50% of drug interactions. Introduction: High blood pressure is a cardiovascular disease responsible for eight million deaths a year worldwide; it is a real public health problem. In Mali there have been many studies on antihypertensives but very few studies have been on the quality of their prescriptions especially in the officiine environment, our work aimed to analyze the quality of prescription of anti-hypertensive drugs in private dispensaries of the district of Bamako. Materials and methods: This was a cross-sectional analytical study of 12 private pharmacies in Bamako district from March 13 to August 10, 2018, of which 329 samples were collected that included any prescription set from a health structure presented at the officiine containing at least one antihypertensive. Results: Antihypertensives accounted for 53.1% of all prescribed molecules including non-antihypertensive drugs; more than half of hypertensive patients were female with 59.4%. Only 5.6% of prescriptions included the patient's age. Calcium inhibitors (Ics) were the most prescribed with 34.5% followed by diuretics (24.17%) cases. Monotherapy was the majority (72.34%). The most common antihypertensive drugs were in specialty, at 73.3%. The dosage was observed almost on all prescriptions with 98.2%. The name, qualification and stamp of the prescriber were presented almost on all prescriptions: 95.3%, 94.4%, and 94.9% respectively. The most prescribing non-anti-hypertensive drugs were nonsteroidal anti-inflammatory drugs and painkillers with 25.4% and 15.1% respectively. Of our prescriptions received, 91% were AMO prescriptions (compulsory health insurance) and 50% were noted for drug interactions. Among the four risk levels of drug interactions, the precautionary risk level of use was observed in more than half of the cases or 56.4%.***
Conclusion:

**Keywords:** analysis, prescription, dispensation, antihypertensives, private dispensaries

## 1. Introduction

A non-communicable disease, high blood pressure (HTA) is a real public health problem due to its increasing prevalence and complications not only in industrialized countries but also in developing countries e development [1]. It is a chronic disease that is a powerful cardiovascular risk factor, responsible for high morbidity and mortality, especially in underdeveloped countries [2]. It affects about 20% of the world's population, unevenly distributed across continents and countries [3]. Its prevalence in France is estimated among 18 to 75 year olds at 23%, 20% in the United States and 18% in China [4]. In the African continent, 20,000,000 people are reported to be affected [5]. In Mali the bulk of the data is hospitable with a prevalence of 35-37% [6]. HtA-related mortality, due to its complications, is very high with nearly 8 million deaths per year according to the WHO [7]. In Mali this rate ranges from 16.6% to 32.5% [8]. A 2014 study in the hospital pharmacy department of the Point-G University Hospital reported a prescription rate of 51% of antihypertensives [9]. This work proposed to make a pharmaceutical analysis of the quality of the prescription of antihypertensive drugs dispensed in private pharmacies of the District of Bamako.

## 2. Materials and method

This was a prospective and analytical study carried out in the six municipalities of the District of Bamako, where in each of them we worked in two offices.
These offices are as follows according to the municipalities:
Commune I :Pharmacie Bel Air in Sotuba , SidiBoukenem Pharmacy in Sotuba
Common II: Pharmacy BadjiSoussouko Medina Coura, Pharmacy Medine Medina Coura
Commune III: Massaman Keita Pharmacy in Bolibana, Cheick Zayed Pharmacy in Bamako Coura
Commune IV: Lafia Pharmacy in Lafiabougou , Melina Pharmacy in Lafiabougou
Commune V: Pharmacy Daoudabougou Market in Daoudabougou, Pharmacy La Savane in Daoudabougou
Commune VI: Multi-Pharma Pharmacy in Faladié, Pharmacy Amen in Magnambougou .
Taken over a period of 5 (five) months from March 13 to August 10, 2018 in an official setting.
The inclusion criteria were any prescription from a health structure presented to the officiine, containing at least one antihypertensive.
Were not included:

- Any antihypertensive without a prescription;

- Any prescription that does not contain an antihypertensive.

**Data collection**

Prescription data was collected from the fact sheets. The parameters studied were: Patient identity, prescribed antihypertensive (s) (in DCI or specialty), class of antihypertensive (s) , galenic form of antihypertensive drug(s), accuracy of dosage and dosage, other (s) prescribed non-antihypertensive drug (dCI or specialty) , class of non-antihypertensive drugs, galenic form of non-hypertensive drugs,precision of the dosage and dosage of non-antihypertensive drugs antihypertensive (s), prescriber profile, prescription date, prescription readability, prescription presentation (AMO or conventional), drug interactions.

**Variable measures**

Types of interaction: To be taken into account, Precaution of employment, Association not recommended, Association contraindicated.

The type of prescription: The quality of the prescription, Profile of the prescriber. The data was captured and analyzed by IBM SPSS Statistics 20. All variables were presented in the table as a percentage.

## 3. Results

More than half of the hypertensive patients were female with 59.4%. Only 5.6% of prescriptions included the age of the patients. Antihypertensives accounted for (53.1%) prescribed medications. The prescribed classes of antihypertensives were Ics (34.5%), diuretics (24 .17%), IECs (16%), beta-blockers (15%), ARA2 (8%) and AHCs (2.33%). Monotherapy was the majority with (72.34%); followed by bitherapy (25.83%) and ART (1.83%). The associations were made up of diuretic IECs (10.6%), beta-blockers (5.2%), IEC-IC (4.3%), ARA2 -diuretics (3%), IC-ARA2 (2.1%), IC-ARA2-diuretic (1.8%), beta-blockers (0.6%). The drugs were mostly prescribed in specialties: 73.3% against 26.7% of generics (DCI), the important dosage in both treatment and dispensation, was mostly observed with 86.3%.the dosage was observed almost on all prescriptions with 98.5%. With the reserve of a single order that did not include the prescriber's signature, all the requirements were dated, signed and all readable. The name, qualification, and stamp of the prescriber were presented almost on all prescriptions during the study, 251 were AMO prescriptions or 76.29%. There were 50% drug interactions. Of the four (4) risk levels of drug interactions that we looked at - precautionary use - was the highest level of risk with 56.4% and none of the risks corresponded to an association against indicated.

## 4. Discussions

Our study focused on the quality of prescribing of antihypertensive drugs, and was limited to prescriptions that had at least one antihypertensive drugs dispensed in private dispensaries in Bamako district. We collected 329 prescriptions. More than half of the hypertensive patients were female with 59.4% of cases. Only 5.6% of prescriptions included the age of patients comparable to that of Ibrahim [10] in which few prescriptions included age or 6.5%. Antihypertensives accounted for 53.1% of all prescribed molecules including non-hyperhypertensive drugs. This result is comparable to that of Maria [9] 51% while it is markedly different from that of Ibrahim [10] 42.8%. The most commonly prescribed antihypertensive class was calcium inhibitors (34.5%) unlike Maria [9] or diuretics dominated.

**Table I:** Breakdown by Gender

| Sex | Effect | Percentage |
|---|---|---|
| Masculin | 95 | 40,6 |
| Féminin | 139 | 59,4 |
| Total | 234 | 100 |

**Table II:** Breakdown by Type of Prescription

| Présentation de la prescription | Effect | Percentage |
|---|---|---|
| AMO | 213 | 91,0 |
| Ordonnance classique | 21 | 9,0 |
| Total | 234 | 100 |

**Table III:** Therapeutic Class Breakdown of Antihypertensive Drugs (MAHT) on Prescription

| Classe des MAHT | Effectif | Percentage |
|---|---|---|
| Béta bloquant | 45 | 13,7 |
| Diurétiques | 35 | 10,6 |
| IEC | 19 | 5,8 |
| IC | 118 | 35,9 |
| ARA II | 11 | 3,3 |
| AHC | 10 | 3,0 |
| ARA II + Diurétique | 10 | 3,0 |
| Béta bloquant + Diurétique | 17 | 5,2 |
| Béta bloquant + IC | 2 | 0,6 |
| IEC + IC | 14 | 4,3 |
| IEC + Diurétique | 35 | 10,6 |
| IC + ARA II + diurétique | 6 | 1,8 |
| IC + ARA II | 7 | 2,1 |
| Total | 329 | 100 |

**Table IV:** Breakdown by Galenic Form of Antihypertensive Drugs on Prescription

| Forme galénique des MAHT | Effectif | Percentage |
|---|---|---|
| Comprime | 326 | 99,1 |
| Injectable | 3 | 0,9 |
| Total | 329 | 100 |

**Table V:** Distribution of antihypertensive drugs by type of medication

| DCI/Spécialités des MAHT | Effectif | Frequence |
|---|---|---|
| DCI | 88 | 26,7 |
| Spécialité | 241 | 73,3 |
| TOTAL | 329 | 100 |

**Table VI:** Therapeutic Class Breakdown of Prescription Drugs

| Classe thérapeutique | Effectif | Frequency |
|---|---|---|
| MAHT | 329 | 53,1 |
| MNAHT | 291 | 46,9 |
| Total | 620 | 100 |

**Table VII:** Distribution of Non-Hypertensive Drugs (MNAHT) by Therapeutic Class

| Classe des MNAHT | Effectif | Pourcentage |
|---|---|---|
| AINS | 74 | 25,4 |
| Antalgique | 44 | 15,1 |
| Anti diabétique | 31 | 10,7 |
| IPP | 29 | 10 |
| Anti acide | 16 | 5 ,3 |
| Anti glaucomateux | 13 | 4,5 |
| Statine | 12 | 4,1 |
| Antibiotique | 9 | 3,1 |
| Myorelaxant | 8 | 2,7 |
| Anti paludique | 7 | 2,4 |
| Anti ischémique | 5 | 1,7 |
| Anti asthénique | 5 | 1,7 |
| Anti tussif | 5 | 1,7 |
| Antithrombotique | 5 | 1,7 |
| Anti épileptique | 4 | 1,4 |
| Anti histaminique | 4 | 1,4 |
| Médicament de la thyroïde | 3 | 1,0 |
| AIS | 3 | 1,0 |
| GEH | 3 | 1,0 |
| Anti asthmatique | 2 | 0,7 |
| Total | 291 | 100,0 |

**Table VIII:** Breakdown by risk level of prescription drug interactions

| NIVEAU DE RISQUE | Effectif | Percentage |
|---|---|---|
| A prendre en compte | 28 | 24,0 |
| Précaution d'emploi | 66 | 56,4 |
| Association déconseillée | 23 | 19,6 |
| Association contre indiquée | 0 | 0,00 |
| TOTAL | 117 | 100 |

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