

Treating Hypertension in the Workplace: Can the Numbers Be Controlled in 3 Months?

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Abstract

Hypertension is a public health problem that affects both developed and developing countries. Senegal is making significant progress in the fight against this and other chronic, non-communicable diseases. Achieving blood pressure control within three months of treatment is an important pillar of Senegal's strategy. The objective of this study was to evaluate the achievement of blood pressure control within three months of treatment at SCL. Our results show the need to strengthen blood pressure management skills of healthcare staff.

Keywords

High Blood Pressure, Non-Communicable Disease, ABPM, Treatment Target, Senegal

1. Introduction

High blood pressure is a common chronic disease and a major public health problem in both developing and developed countries [1]-[3]. It is the leading global burden of disease risk factor [4] [5]. In Senegal, the prevalence is over 25% [6]. It is estimated to reach 46% in the city of Saint-Louis; with an upward trend [7].

In companies, a study carried out at the Senegalese National Lottery revealed a prevalence of 35.04% of hypertension [8].

However, its diagnostic and therapeutic means are known and well-codified.

Today, the diagnosis of hypertension is made in all health structures with the programs developed by the Senegalese government to fight against high blood

pressure [9]. Indeed, the fourth strategic axis of the Integrated Strategic Plan for the fight against non-communicable diseases (NCD) consists of strengthening capacities for the management of these NCDs at the primary health care level and promoting the use of the WHO PEN package. The latter is a package of essential NCDs developed by the WHO for primary health care in low-resource settings [10] [11].

To overcome high blood pressure, treatment is an important part of this WHO PEN package. The objective of the treatment is to control blood pressure figures within three months of treatment, as also described by the ESH (European and International Society of Hypertension, European Society of Nephrology) [10]-[12].

Is it really possible at the workplace? In developing countries such as Senegal, occupational health services have a duty to treat hypertension as part of their curative mission. This is partly due to the limited availability of healthcare service and the large workforce in companies like SCL [13].

2. Material and Methods

Our diagnostic strategy, at Société de Cultures Légumières (SCL), was to systematically perform an ABPM for confirmation to all workers with grade 1 or grade 2 hypertension without signs of repercussions; then a control ABPM after three months of treatment to all workers placed under treatment. We used a Contec-type ambulatory blood pressure monitor according to the validity criteria.

SCL is an agri-food company, specialized in the production, packaging, and marketing of fresh vegetables. The company is located in the region of Saint-Louis, North of Senegal.

3. Results

There were a total of 41 ABPM performed as part of the evaluation of antihypertensive therapy. This indication accounted for 38% of all ABPM performed; behind the indication of diagnosis (57%) and ahead of prognostic evaluation (5%).

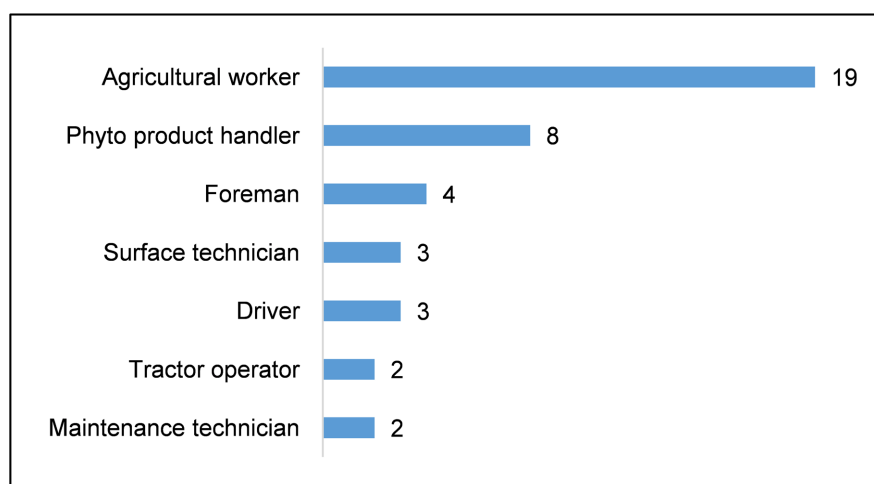


Figure 1. Distribution according to the occupation.

The population of hypertensive patients concerned was made up of 51.2% men. The mean age was 46.9 years with extremes of 31 and 59 years.

The occupation most affected was agriculture workers with 46.3% of cases? The distribution is shown in **Figure 1**.

The levels of hypertension in the office are shown in **Figure 2**.

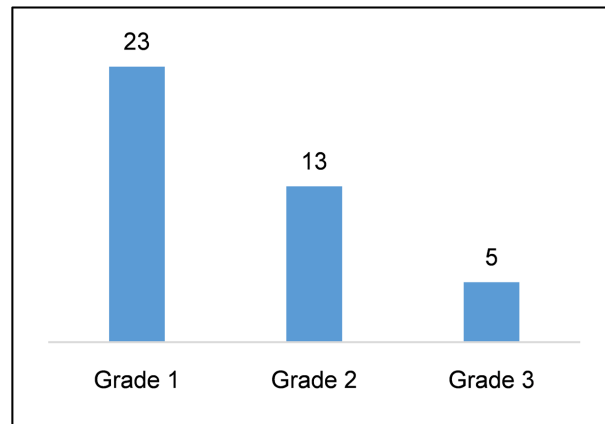


Figure 2. In office blood pressure level.

The other risk factors found were a sedentary lifestyle, being overweight and diabetes (**Table 1**).

Table 1. Distribution of risk factor by gender.

	Female	Male	Total
Sedentary lifestyle	6 (37.5%)	10 (62.5%)	16 (100%)
Overweighth	8 (47.1%)	9 (52.9%)	17 (100%)
Diabete	1 (50%)	1 (50%)	2 (100%)

The treatments initiated consisted of monotherapy with amlodipine at 5 or 10 mg in 51.2% of cases and dual therapy (amlodipine + an inhibitor of the converting enzyme) in 48.8% of cases. Adherence to treatment was good; judged on the frequency of prescription renewal. Indeed, as their treatment is covered up to 70%, the workers come back each time to make a new prescription and a letter of guarantee so that they do not have to pay by themselves.

At the ABPM control, blood pressure levels dropped by an average of 10.4% with extremes ranging from 7% to 14%. 15 workers (36.6%) were not Dippers (**Figure 3**).

The average pulse pressure was 50.97 with extreme values of 35 and 80 mmHg and a standard deviation of 10.2.

Blood pressure was under control in only 21 workers (51.2%).

57.2% of patients on monotherapy were not controlled, as were 40% of workers on dual therapy (**Table 2**).

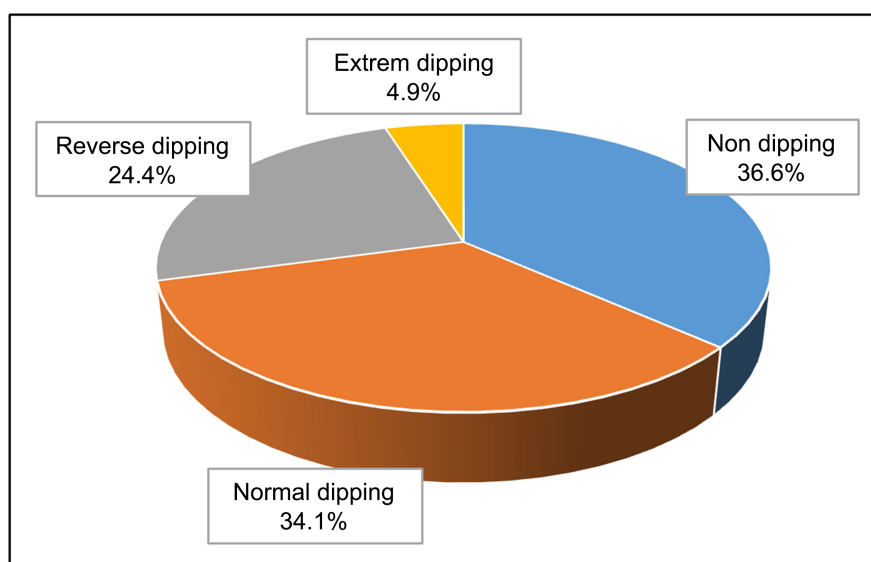


Figure 3. Distribution of dipping types.

Table 2. Blood pressure control according to therapeutic regimen.

	BP Controlled	Uncontrolled BP	Total
Mono therapy	9 (42.8%)	12 (57.2%)	21 (100%)
Dual therapy	12 (60%)	8 (40%)	20 (100%)
Total	21 (51.2%)	20 (48.8%)	41 (100%)

P = 0.2.

4. Discussion

The use of ambulatory blood pressure monitoring is not routine in Africa and Senegal [2] [14]. This systematic use of ABPM for hypertension confirmation and therapeutic control is unique to SCL as recommended by the by the US Preventive Services Task Force [15]. This was made possible by the management's commitment to health. In fact, the medical department of SCL, had the necessary equipment to perform all indicated ABPMs free of charge for its employees.

In Senegalese and Congolese hospitals, even when available, ABPM was used more for therapeutic monitoring than for diagnostic purposes [14] [16]. In neighboring Guinea, although not systematically, ABPM was mainly used for diagnostic purposes [17].

The average age of our patients was close to that found in Guinea [17] but lower than in Dakar and Nigeria [2] [14]. The last two studies were conducted in specialized hospitals.

Agriculture workers are most affected, and grade 1 hypertension is the most common. Non-dipper patients were in the majority, as in most series [18]; probably due to a diminished day-to-night BP ratio with traditional morning antihypertensive dosing [19] [20].

Achieving blood pressure control within 3 months is a challenge in the treatment of hypertension. This control is a worldwide problem [2] [18] [21] [22]. In fact, only 50% of hypertensive patients are controlled in Spain, 41.4% in Conakry, 35% in Congo Brazzaville 38% in Burkina Faso, 7% in Sub-Saharan Africa and 2.7% in Togo [16] [17] [22]-[25]. In Senegal, a survey conducted in Dakar found that only 32.14% of hypertensive patients on treatment had their blood pressure under control [26]. The national STEPS survey found an alarming control rate of 2.7%. These rates are different from what we found in the SCL. The difference may be due to the fact that our study population consisted of known workers who were regularly monitored, but more importantly, blood pressure control was assessed by ABPM. In any case, the level of blood pressure control in treated hypertensive patients is a matter of concern for all practitioners. These low levels could be related to therapeutic inertia, lack of training, limited access to ABPM, etc. [27].

5. Conclusion

The goal of achieving blood pressure control within three months was far from being achieved. This suggests that much remains to be done to train health workers in peripheral health structures in the management of hypertension. Since the diagnosis of hypertension is likely to be achieved, policies should focus on strengthening skills in the management of hypertension.

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Authors' Contributions

Asséga Sylvain SAGNA: Formal analysis, writing original draft;
Ibrahima DIARRA: Visualization;
Serigne Mor BEYE: Visualization;
Mossane Dominique NDOUR: Visualization;
Modou Mbacké GUEYE: Visualization;
Mame Thioro Aïssatou FALL: Visualization.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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