

Assessment of Regular Physical Activity in the Care of Hypertensive Patients at the Cardiology Institute of Abidjan and at the National Police Hospital (Ivory Coast)

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Abstract

Aim: Physical activity and other lifestyle changes are an important part of the guidelines for anti-hypertensive therapy. The effect of physical activity on hypertension and heart disease has been well described. No study in our context has been done on this issue. The aim of this study was to evaluate regular physical activity in the management of hypertensive patients at the Cardiology Institute of Abidjan and the National Police Hospital. **Material and methods:** This was a prospective and descriptive study held in the External Consultations and Rehabilitation Departments of the aforementioned structures. It started on July 20, 2017 and ended on September 7, 2017. The data were analyzed on SPSS version 22. A p-value of less than 0.05 was considered to be statistically significant. **Results:** Out of the 190 hypertensive patients recruited and educated, only 70 actually participated in the physical activities that took place in the Rehabilitation Department of Heart Institute. The mean age of the patients was 52 years \pm 15 years. The most affected age group was between 40 and 49 years of age (47.40%). There was a male predominance with a sex ratio of 1.11. 63.16% of the patients had a superior. The follow-up time for Hypertension was more than one year in 73.68% of the cases. Our study highlighted the knowledge of the virtues of regular physical activity on the body in 94.74% of cases. Physical activity was prescribed in 94.74% of cases. It was practiced in 63.16% of cases. The main reasons given for those who did not practice physical activity were "lack of willpower" (90%) and physical activity considered "too tiring" (70%). Physically active patients had

a significant decrease of 17.98 mmHg in systolic blood pressure ($p < 0.001$) and 11.54 mmHg in diastolic blood pressure ($p < 0.001$). **Conclusion:** The practice of physical activity in the control of hypertension remains insufficient at the Abidjan Heart Institute. Despite this insufficiency, physical exercise seems to have a positive effect on blood pressure control associated with antihypertensive pharmacological treatment.

Keywords

Regular Physical Activity, Hypertension, Abidjan

1. Introduction

Globally, hypertension is the main risk factor for morbidity and mortality [1]. In Ivory Coast, hypertension data indicated a prevalence rate of 25% in 2005 according to the STEPS survey [2]. Lifestyle factors, including physical inactivity, are important modifiable risk factors in the development of hypertension. In addition to standard anti-hypertensive therapy, the benefits of physical activity on hypertension and cardiovascular disease have been well demonstrated [3] [4] [5] [6]. As a result, physical activity and other lifestyle changes are an important part of the guidelines for anti-hypertensive therapy [7] [8]. While the effect of physical activity on hypertension and heart disease has been well described, no study in our context has been done on this issue. The aim of this study was to evaluate regular physical activity in the management of hypertensive patients at the HIA and the NPH in Ivory Coast.

2. Material and Methods

It was a prospective and descriptive study that took place in the Departments of External Consultations and Rehabilitation of the HIA and the NPH. It started on July 20, 2017 and ended on September 7, 2017 for a total duration of 48 days. It took place in two phases. The first phase consisted in recruiting our study population, which consisted of hypertensive patients who attended and agreed to participate in the consultation services of these centers. In the second phase, the patients recruited are referred to the HIA Rehabilitation Service to benefit from an hour-long walking session, three times a week. They were supervised by two supervisors. Of the 190 hypertensive patients recruited and educated, only 70 actually participated in physical activities. To achieve our goal, we have developed a questionnaire.

The questionnaire included socio-professional characteristics of the patients, knowledge of hypertension and PRA. This questionnaire also included average mean blood pressure levels before and after physical activity during the study period. These parameters were taken by the supervisors through two approved electronic blood pressure monitors, OMRON M3 brand.

The data collected on the survey sheet were entered on the EPIDATA software

and were analyzed on SPSS version 22. The quantitative variables were expressed as means \pm standard deviation and the statistical tests were carried using the T Student test. The qualitative variables were expressed as proportions and the statistics were obtained using the chi-square test. A p-value less than 0.05 was considered to be statistically significant.

3. Results

➤ On the socio-professional characteristics of the patients

In our study, the mean age of the patients was 52 years \pm 15 years. The most affected age group was between 40 and 49 years (47.40%). We noted a male predominance with a sex ratio of 1.11. In our study, 42.11% of the respondents were public servants (**Table 1**). According to the level of education, 63.16% of the patients had a superior (**Table 2**). The follow-up time for hypertension was more than one year in 73.68% of cases (**Table 3**).

Table 1. Distribution of patients by sector of activity.

Sector of activity	Numbers	%
Employ of the private	30	15.79
Official profession	80	42.11
Liberal profession	30	15.79
Retirement	30	15.79
Unemployed	20	10.53
Total	190	100

Table 2. Distribution by level of study of patients.

Study Level	Numbers	%
Out of school	10	5.26
Primary	30	15.79
Secondary	30	15.79
High school	120	63.16
Total	190	100

Table 3. Distribution according to the follow-up period of Hypertension.

	Numbers	%
Less than 1 year	20	10.53
1 to 2 years	40	21.05
2 to 4 years	60	31.58
5 to 10 years	40	21.05
Unspecified	30	15.79
Total	190	100

➤ Knowledge and practice of patient RPA

Our study highlighted the knowledge of the virtues of regular physical activity on the body in 94.74% of cases (**Table 4**). In our series, 94.74% of patients received a prescription for physical activity (**Table 5**). It was performed in 36.84% of cases (**Table 6**). The reasons cited for those who did not participate in physical activity were “lack of willpower” (90%), physical activity found “too tiring” (70%) and “lack of time” (60%).

➤ Physical activity and blood pressure

There was no difference between patients who received the prescription of PRA and the opposite group before the practice of PRA in terms of blood pressure levels (**Table 7**). In patients who participated in physical activity, there was a significant decrease of 17.98 mmHg in systolic blood pressure ($p < 0.001$). Diastolic blood pressure decreased significantly by 11.54 mmHg ($p < 0.001$) (**Table 8**).

Table 4. Distribution according to the knowledge of the virtues of physical activity on the body.

Knowledge of the virtues of physical activity	Numbers	%
Yes	180	94.74
No	10	5.26
Total	190	100

Table 5. Distribution of physical activity prescribed to patients by health staff.

Prescribed physical activity by the doctor	Numbers	%
Yes	180	94.74
No	10	5.26
Total	190	100

Table 6. Distribution of surveyed patients engaged in regular physical activity.

Regular physical activity	Number	%
Yes	70	36.84
No	120	63.16
Total	190	100

Table 7. Mean patient blood pressure levels prior to RPA.

	Patients with PRA prescription n = 180	Patients without PRA prescription n = 10	p-value
SBP (mmHg)	145.30 ± 10	142.82 ± 11	0.3594
DBP (mmHg)	92.15 ± 8	93.30 ± 8	0.7009

Legend: SBP (Systolic blood pressure); DBP (Diastolic blood pressure).

Table 8. Impact of PRA practice on pressure variation in patients who received PRA prescription after six months.

	PATIENTS WITH PRA PRESCRIPTION n = 180			p-value
	Patients RPA practice n = 70	Sedentary patients n = 110	Variation of BP	
SBP (mmHg)	120.30 ± 10	138.28 ± 11	-17.98	<0.001
DBP(mmHg)	80.26 ± 7	91.80 ± 8	-11.54	<0.001

Legend: SBP (Systolic blood pressure); DBP (Diastolic blood pressure); BP (blood pressure).

4. Discussion

Limits of the Study

They were essentially, the failure to assess patients with disabilities due to the painful standing position and the non-compliance of some patients. However, our study remains original because it is comparative. It assesses the prescribing of physical activity in the management of arterial hypertension. It highlights the contribution of the physical activity in the control of the arterial pressure of hypertensive.

In terms of socio-demographic characteristics, the age group most concerned was 40 to 50 years old. These observations show that hypertension increasingly affects young people. However, the exact prevalence of hypertension in young people according to the literature is relatively difficult to assess, due to the very different data available according to age groups, ethnicity, selection criteria, methodology applied for blood pressure measurements, oscillometric techniques, the number of blood pressure measurements available and the number of hospital visits for populations. In any event, it has been estimated that almost one in five young adults have high blood pressure [9].

Male predominance is observed until the sixth decade of life [10].

Basic scientific research has identified several possible mechanisms responsible for the observed differences between men and women in hypertension. This is the divergent role of the immune system in hypertensive men and women [11]. Our patient's level of study was high (63.16% higher level). This is an important factor in the integration of right habits to adopt for the proper monitoring and implementation of health staff recommendations.

Our study found that very few (36.84%) engaged in physical activity. Paradoxically, 94.74% of patients had a good knowledge of the virtues of practicing RPA on the body. Our data can be superimposed on those of Mona in Kuwait [12].

In this study, approximately 94.74% of doctors advised their patients to practice physical activity and only 63.16% practiced it. The reasons for the deficit in the practice of RPA in our study were: lack of willpower, physical activity found tiring and lack of time. Our results can be superimposed on those of Mona who found a main obstacles to the practice of physical activity reported, "lack of

time”, “lack of desire” and “lack of conviction of the benefits” (12%) [12].

In our study, in patients who participated in physical activity, there was a significant decrease of 17.98 mmHg in systolic blood pressure ($p < 0.001$). Diastolic blood pressure decreased significantly by 11.54 mmHg ($p < 0.001$).

These results justify the recommendations of the American working group on prevention services [13]. This group recommends that health care providers advise health professionals to promote regular physical activity [13]. And in a cluster randomized controlled trial in eastern New Zealand, counselling patients in general practice increased physical activity and quality of life, and that the procedure could reduce blood pressure by 1 to 2 mmHg on average over 12 months [14].

5. Conclusion

The practice of physical activity in the control of hypertension remains insufficient in Ivory Coast. Despite this insufficiency, physical exercise appears to have a positive effect on the control of blood pressure associated with antihypertensive treatment. The results of our study suggest that healthcare professionals should be in the habit of prescribing physical activity as resolutely as antihypertensive drugs and hygienic-dietary measures. This prescription must include frequency, duration, intensity and evaluation. It is important that patients be monitored regularly to confirm adherence to the management plan and that the blood pressure objectives are being met.

Conflicts of Interest

The authors declare that they have no competing interest.

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Questionnaire

Assessment of regular physical activity in the care of hypertensive patients at the cardiology institute of Abidjan and at the national police hospital (Ivory Coast)

I. Epidemiologic data

1) Sexe

M F

2) What age group are you in (years)?

20 - 30 30 - 40 40 - 50 ans 50 - 60 60 - 70 ans + De 70 ans

3) What is your activity sector?

Private employee civil servant liberal profession

Retired unemployed other specified...

4) What is your level of education?

Primary level secondary level higher level no schooling other specify...

5) Do you currently exercise a professional activity?

Yes no

If so, what means do you use to get to your workplace?

On foot personal car public transport bicycle motorcycle If not, why?

6) What is the distance between your place of residence and your place of work?

From 1 km Between 1 and 2 km Between 3 and 5 km 5 to 10 km 15 to 20 km + From 20 km

7) Since when were you tested for hypertension?

From 1 year 1 to 2 years 2 to 4 years 5 to 10 years + From 10 years

II. Question relating to the knowledge and attitudes of patients

8) What is hypertension?

9) What do you think hypertension treatment is based on?

Antihypertensive drugs

The others (hygiene-dietetic measures the practice of regular physical activity)

10) What do you think are the causes of hypertension

Sedentary lifestyle Obesity Alcohol Tobacco Heredity Curse No cause specify .

11) Do you know the virtues of activity on the body?

Yes no quote them...

12) What is physical activity?

Do housework, garden, tinker regularly

Shopping at the supermarket once a week

Walk unsuccessfully a distance of 3 km for at least 30 minutes

Run a distance of more than 3 km Jogging Walk a distance of 1 km

Cycling Lift heavy objects Play video games and chat with friends on so-

cial networks Visiting loved ones every weekend

13) Do you participate in regular physical activity?

Yes no

If yes which swimming jogging walking stretching other specify...

If not, why Too tiring No will My doctor did not tell me to play sports

No place to practice physical activity I don't like sport No time

14) When do we say physical activity is regular?

1 time/week 1 time/month 2 times/week 4 times/week

Every day of the week

15) When do we say that an RPA is good for the body?

10 minutes moderate to intense 10 minutes lightly

3 times 10 minutes moderately 45 minutes lightly

More than 60 minutes moderately

16) How do you get to your consultation appointments?

On foot By personal car Bike Motorcycle Public transport

17) In your opinion, where can we practice a physical activity?

In an area suitable only for sport In a gym In a corner of his house

Going to work Everywhere you can

18) Has your doctor prescribed physical activity for you?

Yes no

If so, what activity?

Jogging Walking Fitness Swimming Others specify

How frequently?

Once/month Once/month 3 times/week 45 times/week Every day of the week

And for how long?

10 minutes 3 times 10 minutes 30 minutes

45 minutes 60 minutes 60 minutes According to my abilities

19) Did your blood pressure return to normal with the prescribed treatment?

Yes no

If so, what do you think this is due to?

a) The correct medication

b) The regular practice of a physical activity

c) Recommendations on good dietary hygiene habits

If not, why do you think?

a) Incorrectly taking medication

b) Correct taking of medication but not practicing physical activity

c) Incorrect intake of medication, non-practice of physical activity and non-follow-up of hygiene and dietetic measures

d) I have no idea

20) How do you know your blood pressure is high?

During checks When I have a headache and dizziness

21) Do you have a notebook where you mark your blood pressure?

Yes no

22) What were your blood pressure figures when you last took it?

a) $\geq 140/90$ mmHg b) 135/85 mmHg

c) 120/80 mmHg d) 110/60 mmHg

23) What does your doctor insist on during your appointments at the office?

Taking medication correctly

The respect of hygieno-dietetic measures

Regular practice of regular associated physical activity

24) What do you think helps you the most in treating your hypertension?

Taking medication correctly

The respect of hygieno-dietetic measures

Regular physical activity

25) How do you sum up your days?

Go to work Watch television afternoon and evening respect

Go to bed after lunch when you are home on rest days Go straight to bed after the evening meal Shopping at home Go to visit relatives

Go out with friends to chat Coming home after hard work

Others specify

26) What does it take for you to engage in regular physical activity?...

III. Impact regular physical activities and arterial pressure

- Including: SBP ... DBP ...

- Six months after regular physical activities: Including: SBP ... DBP ...

List of Abbreviations

- STEPS survey: recommended by the WHO for the study of noncommunicable diseases in 2005 in Ivory Coast
- HIA: Heart Institute of Abidjan
- NPH: National Police Hospital
- PRA: Physical Regular Activity