

Assessment of Physical Activity Level and Its Effects on Blood Pressure Control among Hypertensive Patients Attending Kiambu Level Five Hospital, Kenya

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ABSTRACT

Hypertension is a global public health concern since it contributes to onset of heart related diseases. Control of blood pressure among hypertensive patients is important to reduce cardiovascular disease events. Lifestyle modifications that involve engagement in exercise and physical activity are some of the measures that have been found to be appropriate in maintenance of optimal blood pressure levels among hypertensive patients. There exists paucity of information on physical activity level of hypertensive patients. The objective of this study was therefore to determine the physical activity level of hypertensive patients in Kenya. The study engaged 134 hypertensive adult patients attending Kiambu Level Five Hospital. A structured questionnaire was used to collect data on demographic characteristics and physical activity level. Data analysis was done using statistical package for the social science. The relationship between blood pressure level and physical activity was determined by use of Pearson correlation test. A p-value of <0.05 was used as criterion for statistical significance. The current study found that hypertensive patients had low levels of physical activity (63.0%). Physical activity was found to be negatively correlated to blood pressure meaning that; as physical activity increased blood pressure level decreased ($r=-0.211$, $p=0.012$). Subsequently, health professionals should encourage hypertensive patients to engage in physical activity with special attention being drawn on the influence of physical activity to blood pressure level. This could be done by organizing health talks informing the patients of the benefits physical activity would have on their health.

Key Words: Hypertension, blood pressure, Physical activity

INTRODUCTION

Uncontrolled hypertension is the primary cause of cardiovascular disease occurrence which in most cases leads to fatality worldwide. ^[1] Heart diseases are the second cause of death in Africa. ^[2] Research data show 54% of stroke and 47% of coronary artery disease incidences globally are as a result of hypertension. ^[3] The management of hypertension in Africa

remains a challenge due to limited resources. The prevalence of hypertension in Africa continues to increase while its control remains a challenge. ^[4] Hypertension prevalence is expected to rise in the coming years with projections showing that by 2025 in Africa almost three out of every four people will have hypertension. ^[5] The rising hypertension prevalence trend is linked to urbanisation

that has led to changes in lifestyle, and longer life expectancy. [6] Identifying ways to prevent hypertension onset and optimal management of the disease is therefore crucial.

Physical activity has been defined as bodily movement that results in energy use. Physical inactivity is linked to increased risk of overweight and obesity. [7] Uncontrolled hypertension by 8.34 times and is associated with 30% cases of hypertension worldwide. [8-9] Physical activity interacts with blood pressure mechanism in several ways. Physical inactivity raises the risk of uncontrolled hypertension by increasing stimulation of sympathetic system and levels of plasma catecholamine that increase blood pressure level. [10] Physical inactivity in hypertensive patients has been associated to lack of time, safe places for recreation activities and expensive gyms. [11] Physically inactive hypertensive patients are at a higher risk of uncontrolled blood pressure than active people. [12] On the other hand, physical activity has been reported to lower blood pressure level by 5-10 mmHg. [13] Routine engagement in physical activity has potential to enhance antihypertensive drug efficacy, lower cardiovascular risk and blood pressure by 15% independent of weight loss among hypertensive patients. [14-15]

Regular physical activity improves blood pressure control in hypertensive patients. The risk of cardiovascular diseases is lowered with optimal blood pressure. For effective hypertension control understanding the factors that hinder achievement of optimal blood pressure levels is critical. [16] Putting together this data, hypertension related complications may be avoided thus improving the quality of life for hypertensive patients and better intervention strategies being put in place. Several studies have reported a reduction in blood pressure levels in hypertensive patients following engagement in physical activity. [17-18] However, there is paucity of data in Kenya on the relationship between

physical activity and blood pressure levels among hypertensive patients. This study therefore may provide baseline data for a future intervention study and an insight on the relationship between this physical activity and blood pressure control.

Physical activity has potential positive effect on blood pressure; reduces depression risk and improves cognitive function in turn achieving optimal blood pressure levels in hypertensive patients. [19] Regardless of physical activity benefits, inadequate physical activity engagement has been observed a situation that has been blamed on urbanization and industrialization. About a third of adults globally are physically inactive and this contributes to about 1.9 million deaths yearly. [20] Physical inactivity is an independent risk factor for increased blood pressure, diabetes mellitus and heart diseases. Sedentary lifestyle jointly with high energy intake contributes to weight gain leading to obesity. [21] Several studies have reported that a majority of hypertensive patients are sedentary. [22-23]

MATERIALS AND METHODS

134 hypertensive adult patients attending Kiambu level 5 hospital were engaged in the study. Patients that were very sick and those who were unwilling to give informed consent to participate were excluded from the study. A structured questionnaire that incorporated the World Health Organization global physical activity questionnaire (WHO GPAQ) was used to assess physical activity level of the study population. The WHO GPAQ was found to be appropriate since it captures physical activity engagement in different settings of recreational activities, travel to and from places and activities at work. The questionnaire also captures the aspects of sedentary behavior. The average physical activity level was described by use of metabolic equivalents (METs). METs are amount of oxygen consumed by an individual when sitting at rest. [24] Physical activity was then classified into three levels

according to World Health Organization (2012) i.e. high (>6 METs), moderate (3-6 METs) and low (<3 METs).

Data Analysis

Statistical package for the social science was used to analyze data on blood pressure level. Physical activity levels of the study population were described by use of descriptive statistics. Pearson correlation coefficient test established the relationship between blood pressure level and physical activity level. A p-value of <0.05 was used as a criterion for statistical significance.

RESULTS

Majorities (69.4%) of the respondents were women and only 30.6% were men. This study revealed that majority (63.0%) of the respondents had low levels of physical activity (Figure 1).

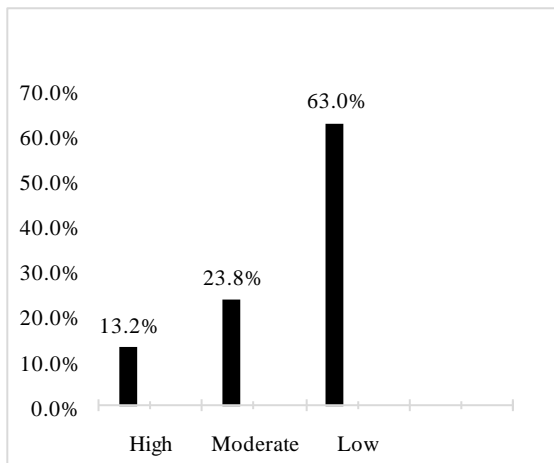


Figure 1: Physical activity levels of respondents

Physical activity was found to be negatively correlated to blood pressure, as physical activity increased blood pressure level decreased ($r=-0.211$, $p=0.012$)

Table 1: Relationship between Physical Activity and Blood Pressure Level

Variable	r	p-value
Physical activity and BP Level	-0.211*	0.012

*Correlation is significant at the 0.05 level (2-tailed).

DISCUSSIONS

The current study found that majority of the hypertensive patients had low levels of physical activity. The males

had a higher level of physical activity compared to the females. This was mainly explained by the difference in nature of work between the two genders. Many of the males engaged in work that required physical effort while the women were engaged in work that required them to sit for long periods over the day. These findings are in agreement with those of previous studies that found majority of male hypertensive patients to be physically active compared to female patients. [25-26] In the current study it was found that as physical activity increased blood pressure level decreased. These findings concur with other studies that have reported that regular engagement in physical activity led to lowered blood pressure among hypertensive patients. [27-29]

CONCLUSION

In view of the current study findings health professionals should encourage hypertensive patients to engage in physical activity with special attention being drawn on the influence of physical activity to blood pressure level. This could be done by education programmes/health talks informing the patients of the benefits physical activity would have on their health. The health talks could be incorporated in the nutrition screening process by the hospital nutritionists.

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