Physical Inactivity and Its Association with Hypertension in Adult: Cross-Sectional Study

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ABSTRACT

Introduction: Physical inactivity is a growing concern in modern society, with sedentary lifestyles becoming increasingly prevalent. This shift towards a more sedentary existence has been associated with various adverse health outcomes, including hypertension. Hypertension, commonly known as high blood pressure, is a significant risk factor for cardiovascular diseases, stroke, and other chronic health conditions. Physical inactivity has been identified as a major risk factor for cardiovascular diseases. An appropriate level of physical activity is a key component of hypertension management and prevention. This study was carried out with an objective to find the prevalence of Physical inactivity and its association with Hypertension in adult population of Guwahati.

Methods: A cross-sectional community-based study was carried out among 60 subjects of age group >18 years during November 2021 to February 2021.Multi stage random sampling method was used. Physical Activity was measured using IPAQ short form.

Results: Prevalence of Physical Inactivity of 49.3%. Overall prevalence of Hypertension was 60%. There was a linear positive correlation between Age with Diastolic Blood Pressure and Systolic Blood Pressure.

Conclusions: This study demonstrated that there is high prevalence of physical inactivity among adult population from selected population in Guwahati which has a strong association with Hypertension.

Keywords: Physical Activity Level, Hypertension, IPAQ

INTRODUCTION

Physical inactivity is a growing concern in modern society, with sedentary lifestyles becoming increasingly prevalent. This shift towards a more sedentary existence has been associated with various adverse health outcomes, including hypertension. Hypertension, commonly known as high blood pressure, is a significant risk factor for cardiovascular diseases, stroke, and other chronic health conditions. Physical inactivity has been identified as a major risk factor for cardiovascular diseases. An appropriate level of physical activity is a key component of hypertension management and prevention. This study was carried out with an objective to find the prevalence of Physical inactivity and its association with Hypertension in adult population of Guwahati.

LITERATURE REVIEW

Numerous studies have demonstrated the effectiveness of physical activity in lowering blood pressure in patients with hypertension. A meta-analysis by Whelton et al. (2002) [1] found that regular aerobic exercise significantly reduced both systolic and diastolic blood pressure in hypertensive patients. The extent of this reduction was correlated with exercise frequency, intensity, and duration. Physical activity may complement pharmacological interventions for hypertension. The RCT by Blumenthal et al. (2010) [2] showed that the combination of antihypertensive drugs and

exercise resulted in better blood pressure control than drug therapy alone. This highlights the potential of exercise to reduce drug dosage and dependence. Exercise has a positive impact on endothelial function and vascular health. A study by Green et al. (2011) [3] found that regular physical activity may improve endothelial function, increase vascular flexibility, and reduce vascular resistance in hypertensive patients.

MATERIALS & METHODS

Sampling method: multi-stage random sampling

Inclusion Criteria: Adults 18 years and older who were willing to participate in the study participated in the study.

Exclusion criteria: People with acute illnesses, people who are deaf or mute or have other communication disabilities, people on long-term medication for chronic illnesses, or immigrants were excluded from the study. Instrument used for data collection Physical activity (PA) was measured using the short form IPAQ, an instrument primarily designed for population monitoring of physical activity in adults (age range 15–69 years). [5]. The IPAQ assesses physical activity in a comprehensive set of domains, including:
1. Leisure time physical activities.
2. Domestic and gardening physical activities.
3. Work related physical activities.
4. Transport related physical activities.

This form assessed three specific types of activity: walking, moderate-intensity activity, and vigorous-intensity activity. The short IPAQ format items are structured to provide separate scores for walking, moderate-intensity activity, and vigorous-intensity activity. To calculate the short-form total score, walking duration (minutes) and frequency (days) and moderate- and vigorous-intensity activities must be summed. The justification used for the restriction of physical activity was divided into three levels.

1. Low: This is the lowest level of physical activity
and those individuals who do not meet categories 2 or 3criteria are classified into 'low' physical
activity level.
2. Moderate: Individuals are classified as 'moderate' if at least one of the below criteria are met:
a) 3 or more days of vigorous intensity activity of at least 20 minutes per day.
b) 5 or more days of moderate intensity activity and/or walking of at least 30minutes per day.
c) 5 or more days of any combination of walking, moderate intensity or vigorous intensity activities achieving a minimum total physical activity of at least 600 MET (Metabolic Equivalent of Task) minutes/week.
3. High: The two criteria should be met for classification as 'high': a) At least 3 days of vigorous intensity activity and achieving a minimum total physical activity of at least 1500 MET minutes/week.
b) 7 or more days of any combination of walking, moderate-intensity or vigorous intensity activities and achieving a minimum total physical activity of at least 3000 MET minutes/week. Blood pressure was recorded using a standard mercury sphygmomanometer. A standard stethoscope was used. As per the guidelines the Blood pressure is categorized as: to record the blood pressure. Normal BP= <120/<80 mm Hg
Elevated BP =120-129/<80 mm Hg
Hypertension stage 1= 130-139- or 80-89- mm Hg
Hypertension stage 2= ≥140 or ≥90 mm Hg. BMI was calculated using a rigid, inelastic tape measure to measure height and a scale to measure subjects' weight, and was regularly calibrated and checked for errors. In this study, we used his BMI classification modified for the Asian population to define overweight (23–24.99 kg/m2) and obesity

(>25 kg/m2). Subjects were divided by age into young adults (18-35 years). middle-aged adults (36-55 years) and older adults (55-80 years).

RESULT

Among 60 subjects, 49.3% (~30) were found to be physically inactive (Low physical activity) and 43.3% (26) moderately physically active and 6.66% (~4) highly active. Comparison of these Physical inactivity (Low physical activity) and Physically activity (Moderate physical activity or High physical activity) with other various continuous and categorical variables is shown in Table 1. In the study population it was noticed that most of subjects with low physical activity were associated with Hypertension as shown in Figure 1. The overall prevalence of Hypertension in study was found to be 60% with (Stage1=41.2% and Stage2=18.8%). The distribution of hypertensive subjects among various age groups is shown in Figure 2, There was a linear positive correlation between Age and Diastolic Blood Pressure (DBP) and Systolic Blood Pressure (SBP) (r=1), The positive corelation (r=1) indicated that risk of physical inactivity increased with increasing age, and value of blood pressure.

Variables	HTN Category	Age group
HTN Category	1	
Age group	0.576789026	1

Column1	HTN Category	Age group	PAL
HTN Category	1		
Age group	0.576789026	1	
PAL	-0.547307866	-0.51291277	1

DISCUSSION

In this study a high prevalence of Physical inactivity among adult (49.2%) was found in the study population. Studies conducted in different parts of the world also got same results of high prevalence of Physical inactivity. Al Hazza et al in Saudi Arabia found the prevalence of physical inactivity to be 40.6% using the IPAQ to assess inactivity.

Limitations

The limitation of the study is that it includes small sample size.

CONCLUSION AND RECOMMENDATIONS

According to the findings of the study, the adult women population in Guwahati was found to be very sedentary, which is strongly linked to hypertension. Therefore, there is a need to focus on developing strategies to promote regular physical activity, which can help in controlling and preventing the non-communicable diseases. In view of the sedentary lifestyle issue, we suggest supplementing and expanding the actions that can modify the behaviour of the populations with the aim of promoting physical activity to reduce the prevalence of Hypertension and other Non-Communicable Diseases (NCDs) and their complications. Therefore, the intervention programs need to be designed to increase the physical activity of this section of the population through changes in behaviour, lifestyle, diet and exercise which can be of public health significance in reducing the occurrence of hypertension.

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