International Journal of Community Medicine and Public Health
Agrawal KH. Int J Community Med Public Health. 2018 Jan;5(1):153-155
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20175773

Original Research Article

Screening of hypertension among rural community of Nepal

Kapil H. Agrawal*

Associate Professor, Department of Community Medicine, American International Institute of Medical Sciences, Udaipur, Rajasthan, India

Received: 28 September 2017
Revised: 10 November 2017
Accepted: 11 November 2017

***Correspondence:**
Dr. Kapil H. Agrawal,
E-mail: dockapil@hotmail.com

ABSTRACT

Background: Hypertension is the commonest cardiovascular disorder, posing a major public health challenge to population in socioeconomic and epidemiological transition. The objective of the study was to determine the prevalence of hypertension in the rural community.
Methods: Community-based cross sectional study was conducted in Chotkiram nagar village of Rupandehi district of Western Nepal. Door to door screening for hypertension was done using mercury sphygmomanometer. Other study variables included demographic factors only such as age and sex. The data was collected from 7th June 2016 to 20th June 2016. All the households in the village were screened and all the persons over 18 years of age in the households were subjected to blood pressure measurement. Thus the sample size comprised of all persons above 18 years of age. Total subjects enrolled were 3158. All persons above (and completed) 18 years of age and holding permanent resident status in the study area at the time of study were included in the study. Pregnant women and persons not willing to give consent were the exclusion criteria set. Though, all the participants gave their consent.
Results: The prevalence of hypertension in the study is 16.2%.
Conclusions: Though the hypertension is significant in the current study, the prevalence is much lower than the studies done in other parts of Nepal. More prevalence studies are required in the rural areas of Terai region.

Keywords: Screening, Hypertension, Prevalence, Rural

INTRODUCTION

Hypertension affects around 22% of people aged 18 years and over and is responsible for an estimated 9.4 million deaths per year globally.[1] It mostly remains asymptomatic but at the same time increases the risk of heart disease, stroke, and renal failure.[2] Hypertension is the commonest cardiovascular disorder, posing a major public health challenge to population in socioeconomic and epidemiological transition.[3]

Studies indicate that there is an epidemiological shift towards high prevalence of hypertension in developing countries as compared to developed countries.[4,5] Nepal is one such developing country where prevalence seems to increase.[6] However, more prevalence studies of hypertension are imperative to design preventive and control strategies. There are limited community based studies on hypertension in Nepal, very few in western regions. Hence, the present study done in Terai region of Western Nepal can also be considered as a baseline study in that geographical setting.

METHODS

This community-based cross sectional study was conducted in Chotkiram Nagar village of Rupandehi district of Western Nepal. This village is about 30 kms

from the city of Butwal. Geographically, Rupandehi is located in terai region of Nepal. The data was collected from 7th June 2016 to 20th June 2016. Door to door screening for hypertension was done using mercury sphygmomanometer. All the households in the village were screened and all the persons over 18 years of age in the households were subjected to blood pressure measurement. The total participants were 3158 from 880 households of the village having population of 4879.

Other study variables included demographic factors only such as age and sex. All persons above (and completed) 18 years of age and holding permanent resident status in the study area at the time of study were included. Pregnant women and persons not willing to give consent were the exclusion criteria set. Though, all the participants gave their consent. Ethical clearance was taken and written permission was obtained from Village Development Committee Office (VDC), Chotkiram nagar.

The purpose of visit was explained to the family members and consent taken. For this study, Joint National Committee (JNC-7) guideline for diagnosis of hypertension was used (SBP ≥140 mmHg and/or DBP ≥ 90 mmHg).[7] Persons on anti-hypertensive medications were considered hypertensive. Persons with isolated systolic hypertension were considered hypertensive and included in the study. The data collected was entered in the excel sheet of the computer. Statistical analysis included calculation of percentages and proportions.

RESULTS

Description of the study population

Total number of subjects enrolled were 3158. Out of which, males were 1648 (52.2%) and females were 1510 (47.8%). Around 59% of the population belonged to age group less than 35 years.

Table 1: Demographic characteristics of the study population.

Variable	Number (%)
Sex	
Male	1648 (52.2)
Female	1510 (47.8)
Age group	
18-25	938 (29.7)
26-35	916 (29)
35-45	566 (17.9)
46-55	364 (11.5)
55+	374 (11.8)

The total prevalence of hypertension was found to be 16.2%. Prevalence among males was 17.5% and in females was 14.8%.

Table 2: Prevalence of hypertension.

Sex	Total no.	Hypertensive	Prevalence (%)
Male	1648	289	17.5
Female	1510	223	14.8
Total	3158	513	16.2

DISCUSSION

Screening is a fundamental aspect of prevention. It is active search for disease among apparently healthy people. Hypertension is a disease which fulfills the criteria to be considered suitable for screening. Moreover, it is a major public health problem. It is particularly a health menace to society in socioeconomic and epidemiological transition. To plan an effective preventive and control strategy one need to quantify the health problem. Nepal is a geographically diversified country divided into Terai (plain), Hilly and Himal regions. Studies have been conducted to know the prevalence of hypertension in hilly regions and some in Himal regions but very few in Terai regions. In the current community based survey in terai region of western Nepal on subjects 18 years and above of age, the prevalence of hypertension was found to be 16.2%

A study done in 2011 by Chataut et al in Central Nepal in rural area among adults above 18 years revealed the prevalence of hypertension to be 22.4%.[8] Vaidya et al in a study at Kathmandu urban in 2006 reported the prevalence to be 33.8%.[6] The WHO STEPs surveillance conducted in 2007 in Nepal reported the prevalence to be 31.3%.[9] While Sharma et al in 2011 in a study in eastern Nepal concluded it to be 33.9%.[10] Prevalence of hypertension in the current study (16.2%) is lower than the prevalence studies done in past in Nepal. Though, the prevalence of our study is much closer to findings reported by Sharma et al in suburban areas of Kathmandu in 2005. [11] They reported the prevalence to be 19.7%. The study conducted by Lamsal and Kafle in Himal region (high hilly areas) of Nepal reported the prevalence of hypertension to be 35.7%. 214 out of total 600 subjects enrolled were found to be hypertensive in their study. They suggest that the higher prevalence of hypertension may be due to certain behavioral patterns prevailing in the area. They further opined that, higher consumption of locally made alcohol, using yak butter and salt in tea, higher rates of smoking and poor availability of fruits and vegetables may have role.[12] To the best of our knowledge and extensive review of literature we did not find prevalence studies on hypertension in Western Nepal especially the Terai region. So we were not able to compare our study findings with other studies of Western region. However, a cross-sectional study conducted by Khan et al among adult women in Terai region of Central Nepal revealed the prevalence to be 3.3%. One likely explanation of the lower prevalence was given to the young age of participants in the study by the authors.

Though, the prevalence among 46 years and above age group was 7.9% in their study. [13]

Additionally, the findings of our study are much closer to the prevalence of hypertension reported in rural areas of North India and West India. A meta-analysis study on prevalence of hypertension in India by Anchala et al in 2013 reported that the pooled prevalence of hypertension for rural North Indian population was 14.5% while for the rural West Indian population was 18.1%.[14] Alcohol, smoking and chewing tobacco, central obesity, consumption of low vegetables and fruits, high consumption of dietary fat and salt, sedentary activity were the significant modifiable risk factors for hypertension among the Indians as per this study.[14]

CONCLUSION

The prevalence of hypertension is 16.2%. Though hypertension is emerging as health concerns, in-depth study is required pertaining to the risk factors of hypertension among people to understand the reasons of lower prevalence in our study setting. More studies are also required in the rural areas of Terai region of Nepal to corroborate the findings.

ACKNOWLEDGEMENTS

The author acknowledges the support of Village Development Committee (VDC) office, Chotkiram nagar, Rupandehi for the study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Agrawal KH. Screening of hypertension among rural community of Nepal. Int J Community Med Public Health 2018;5:153-5.