



Prevalence of Hypertensive Diseases and Associated Risk Factors above 30 Years Adult People Admitted in Morogoro Regional Referral Hospital 2021, Tanzania

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Abstract

Hypertension is the commonest cardiovascular disorder due to its role in the causation of coronary heart disease, stroke and other vascular complications. In Tanzania, hypertension is one of major risk factors for cardiovascular mortality and it's attributed for 10% of all deaths. Increasing prevalence in hypertension expected due to economic transition, increased population growth, aging behavioural risk factors, such as: unhealthy diet and excessive alcohol consumption. Awareness of hypertension and risk factors for hypertension is less among rural. Retrospective Cross Sectional study was conducted over a period of 2 months, June to July 2021 among adults. Among 384 study subjects, 168 were males and 216 were females. The prevalence of hypertension was observed to be 45%. Prevalence increased as the age increased. The prevalence of hypertension was high among obese, these who had history of diabetes Mellitus. Among the study subjects 24.1% (112) were aware of their hypertensive status of these 18.4% that were on regular treatment. The prevalence of hypertension was 45%. Various factors like increase in age, obesity and history of diabetes are implicated in the occurrence of hypertension.

Subject Areas

Internal Medicine

Keywords

Hypertensive Diseases, Heart Disease, Cardiovascular, Risk Factors, Morogoro

1. Introduction

Blood pressure was classified according to the Joint National Committee for hypertension (JNCVII). Hypertension defined by the average of two systolic blood pressures (SBP) > 140 and/or diastolic blood pressures (DBP) > 90 mmHg and/or current use of antihypertensive medications at the time of admission [1] [2]. It was classified as normal blood pressure if systolic blood pressure was between 90 and 119 mmHg and diastolic blood pressure was between 60 and 79 mmHg, prehypertension (mildly elevated) when systolic blood pressure was 120 - 139 mmHg and diastolic blood pressure was 80 - 89 mmHg, Stage 1 hypertension (moderately elevated) when systolic blood pressure was between 140 and 159 mmHg and diastolic blood pressure was between 90 and 99 mmHg, and Stage 2 hypertension (severely elevated) when systolic blood pressure was more than 160 mmHg and diastolic blood pressure was more than 100 mmHg. Hypertension was considered to be controlled among treated individuals when systolic blood pressure was less than 140 mmHg and diastolic blood pressure was less than 90 mmHg. Hypertension is a common problem with widespread and sometimes devastating consequences [3] [4] [5]. This study was done to assess prevalence, risk factors, in Morogoro Regional Referral Hospital (MRRH), Tanzania, which has never been documented before, so that necessary interventions can be undertaken accordingly hypertension and its complications are among the top ten causes of admission in the medical ward at Morogoro Regional Referral Hospital (MRRH).

This could be due to adaptation to a new life style with numerous risk factors such as obesity, excessive salt intake, smoking and physical inactivity. In the developed countries such as UK, promotion towards life style changes in order to prevent hypertension and its complications has resulted in the decrease in incidence hypertension and its complications [6]. Thus, this study was designed to know the prevalence and risk factors of hypertension among the hypertensive patients and to find new adaptive measures on how this burden can be decreased.

2. Method

The retrospective cross-sectional study was implemented to find out the prevalence and associated risk factors.

Retrospective study was conducted at the Morogoro Regional Referral Hospital (MRRH), Tanzania. Morogoro Regional Referral Hospital (MRRH) is one of the government hospitals in mainland, Tanzania serving for a population of approximately 15 million. The hypertensive clinic at Morogoro Regional Referral Hospital (MRRH) is performed twice per week, being one of the significant clinics in Morogoro Region.

Patients' information is recorded into a registration book, investigation forms and patient's files that contain age, gender, type and severity of the blood pressure as well as the Heart disease, for those admitted like ECG, CXR, if available

and RBG. The patients who died before screening were not included in the study. The analysis of data was done by using SPSS version 20 program.

Sample Size

Using the formula for calculating sample size described by Leslie (1965), it was estimated that a total of about 374 elderly men and women at each site would provide acceptable precision in estimating the prevalence of hypertension.

$$N = Z^2 P(1 - P) / D^2 \quad (1)$$

where N = sample size,

Z = score for 95% Confidence Interval which is 1.96,

P = prevalence of hypertensive disease in previous study was 58% (12),

d = tolerable error set at 5%.

$$N = 1.96 \times 1.96 \times 0.58(1 - 0.58) / 0.05 \times 0.05$$

$$N = 374$$

The minimal sample size of this study will be 374 and the maximum will be 384.

3. Results

The demographic and clinical characteristics of the 384 individuals aged ≤ 30 years who were identified at the study sites, are as described below:

Table 1 shows the History of alcohol intake by the individuals, selected by the researcher. And 56.9% showed that they had history of having alcohol and 44.3% had no history of taking alcohol. This data implies that most of patients that are above the year of 30 with hypertension problems, alcohol is one of the main source of the hypertension problems

Table 2 shows patient who had diabetic mellitus and its association with hypertension, a total of 131 patients which are 34.1% had diabetic mellitus, and some of them had hypertension.

Table 3 shows the distribution according to age in combined form of all diseases.

Table 4 shows current cases of patient admitted due to different illness where hypertensive patient comprised a total of 20.3%, which is among the top diseases in Morogoro Region.

Figure 1 shows the relationship between hypertension and diabetic mellitus, a total number of 91 individuals had diabetic mellitus prior to hypertension. What started between hypertension and diabetic mellitus?

Table 1. History of alcohol intake.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	152	44.3	44.1	44.1
	NO	232	56.9	56.9	56.9
	Total	384	100.0	100.0	100.0

Table 2. History of diabetic mellitus in the family.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	131	34.1	34.1	34.1
	NO	253	65.9	65.9	100.0
Total		384	100.0	100.0	

Table 3. Age.

Age	Frequency	Percent	Valid Percent	Cumulative Percent
30 - 40 YEARS	17	4.4	4.4	4.4
40 - 50 YEARS	62	16.1	16.1	20.6
50 - 60 YEARS	126	32.8	32.8	53.4
60 - 70 YEARS	85	22.1	22.1	75.5
≥70 YEARS	94	24.5	24.5	100.0
TOTAL	384	100.0	100.0	

Table 4. Current illness.

	Frequency	Percent	Valid Percent	Cumulative Percent
MALARIA	33	8.6	8.6	8.6
DIABETESMELITTUS	49	12.8	12.8	21.4
HYPERTENSION	78	20.3	20.3	41.7
HIV/AIDS	100	26.0	26.0	67.7
OTHERS	105	27.3	27.3	95.1
TUBERCULOSIS	19	4.9	4.9	100.0
Total	384	100.0	100.0	

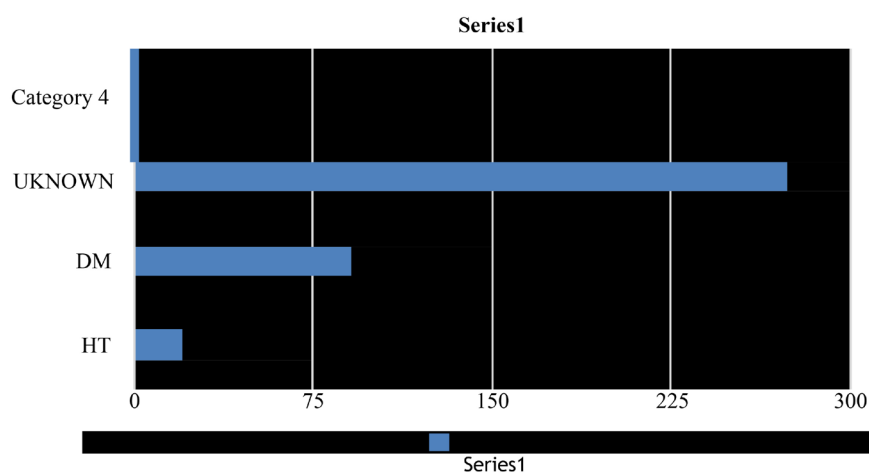
**Figure 1.** Illustrates the relationship between hypertension and diabetic Mellitus.

Table 5 shows total number of 384 respondents, 87 were smokers and the peaked age was above 70, among those have hypertension, basing on both sex, though male were the most group involved in smoking.

Table 5. Age * history of smoking before.

	HISTORY OF SMOKING BEFORE		Total
	YES	NO	
30 - 40 YEARS	12	5	17
40 - 50 YEARS	11	51	62
50 - 60 YEARS	22	104	126
60 - 70 MEMBERS	10	75	85
>70 YEARS	32	62	94
Total	87	297	384

4. Discussions

Hypertension is a common problem and it has been a major cause of morbidity and mortality throughout the developing and the developed countries. In this study a total of 384 patients were studied, 54% of were hypertensive, among that percent were in range of 50 - 60 were years of age.

Recent evidences indicate that hypertension and raised blood pressure are increasing partly because of the increase in risk factors including smoking, obesity, and harmful use of alcohol and lack of exercise [7]. In this study shows that 5% of patients with hypertension where smoking previous, this may be contribute on making patient risk to hypertension.

The commonest age group in MRRH was 50 - 60 years, which comprised of 30.5% compared to patient of UK where the peak age is 70 years old [5]. This could be due to the fact that hypertensive patients in the UK live longer than their counterparts in Tanzania because of their advanced care and facilities. patients in the UK attend regular clinics where the complications of hypertension such as stroke, cardiac hypertrophy and renal failure which are the major causes of mortality among the hypertensive patients are looked up. These regular check-ups facilitate detection of this complication early so that they can be controlled and the patients can live longer. This is probably due to the fact that hypertension and its complications are given much emphasis in the UK, the general public and the patients are educated about hypertension, its risk factors and its complications [8] [9] [10] [11].

In Tanzania it is not given much emphasis much effort is devoted to communicable diseases such as Malaria and HIV/AIDS.

Almost all including our study revealed the prevalence of hypertension was increasing as the age increased. 6 - 10 in our study no association was observed between hypertension and gender whereas Kokiwar PR *et al.* in their study reported higher prevalence among females compared to males [2] [12]. Studies conducted by Bansal SK *et al.*, among rural adults in Uttarakhand, Gupta S *et al.* among rural adults in Haryana, Srinivas S *et al.*, in rural adult population of Andhra Pradesh reported higher prevalence of hypertension in males compared to females. 10 - 13 in this study there was significant association between diabetes and hypertension among the study subjects. A study conducted by Kan-

nan L *et al.*, on “prevalence rate of hypertension in a rural community in Tamilnadu” reports higher prevalence of hypertension among those who have history of diabetes mellitus. In our study no association was reported with hypertension and smoking [1] [2] [7] [11] [12] [13]. Similar findings reported from study by Srinivas S *et al.*, among rural adults in Andhra Pradesh. Whereas Agarwal VK *et al.*, on Prevalence and determinants of hypertension in a rural Community in rural Pune reports there is significant association. A study done by Kokiwar PR *et al.* on the prevalence of hypertension in a rural central India reported similar Findings as our study revealing no significant association between hypertension and alcohol consumption [1] [2] [7] [12].

5. Conclusions

Prevalence of hypertension is increasing in rural areas and various factors like increase in age, obesity, history of diabetes were observed to be associated with occurrence of hypertension. In both countries the commonest preventive measures mentioned was reducing/stop salt intake, doing exercise and taking regular medication.

In both countries the commonest source of information about the risk factors and complications of hypertension were the health professionals, in Tanzania, it comprised of 50.3% where as in UK is 33.

Smoking was found to be the commonest risk factor among the patients in the UK where the same as patient of Tanzania.

All patients should be educated on importance of consistence use of medication on discharge so as to reduce the case fatality rate post discharge, which is unacceptably high (more than 50% at three months).

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Availability of Data and Materials

The datasets analyzed during the current study are available from the corres-

pending author upon reasonable request.

Ethics Approval

The review was conducted after approval by the joint ethical research committee of the St. Francis University College of Health and Allied Sciences, administration particularly department of community medicine and research.

Consent for Publication

Not applicable.

Conflicts of Interest

The author declares no conflicts of interest.

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Abbreviations

BMI-Body Mass Index;
BP-Blood Pressure;
CKD-Chronic kidney disease;
CT-Computered tomography;
CXR-Chest X-ray;
DBP-Diastolic Blood Pressure;
ECG-Electrocardiography;
EGFR-Estimated glomerular filtration rate;
GCS-Glasgow Coma Scale;
GFR-Glomerular filtration rate;
HF-Heart Failure;
HIV-Human Immunodeficiency Virus;
HTN-Hypertension;
JNC-Joint National Committee.