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Community Medicine

PREVALENCE OF HYPERTENSION AND ITS ASSOCIATED RISK FACTORS AMONG SANITARY WORKERS OF TERTIARY CARE HOSPITAL IN AMRAVATI CITY OF MAHARASHTRA, INDIA

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ABSTRACT **Background And Aims:** Sanitary workers have higher tendency to develop hypertension as they spend most of their time in polluted or stressful environments. Hence, the current study was done to determine the prevalence, awareness and control of hypertension among sanitary workers in tertiary care centre in Amravati city. **Methods:** A cross sectional study was conducted among the sanitary workers in tertiary care centre from November 2022 to February 2023 (4 months). Socio-demographic, work related and behavioral characteristics was obtained using a pretested semi-structured questionnaire. Individuals was diagnosed as hypertensive if systolic BP ≥140 mmHg and/or diastolic BP ≥90 mmHg. **Results:** Prevalence of hypertension among sanitary workers was found to be **25%**.Prevalence of pre-hypertension **47.32%** .Male participant are more hypertensive than female.There are various associated risk factors e.g alcohol, tobacco, lack of exercise and obesity responsible for the prevalence of hypertension. Out of 112 participants, there was **24** new cases of hypertension and **53 cases of** pre-hypertension. The current study provided important baseline information on the burden and lack of awareness about hypertension among sanitary workers employed in hospital. This study also identified 84.4% workers unaware of their hypertension status and provided appropriate referral services for further management at the end of the study. **Conclusion:** Current study found that more than one-third of the sanitary workers had hypertension. However, almost three fourth of the hypertensive were not aware about their status and only one-third of the known hypertension cases had controlled Blood Pressure. Hence, it is important to conduct periodic screening and awareness sessions about the possible risk factors for better prevention and control of hypertension.

KEYWORDS : sanitary workers, hypertension, occupational health, sanitation

INTRODUCTION:

Hypertension is an important public health problem and it has no obvious signs or symptoms making the persons unaware of condition.American Heart Association has been defined hypertension as an average systolic blood pressure 140 mm of Hg or greater diastolic blood pressure 90 mm of Hg.(1) Hypertension is an important public health problem and it has no obvious signs or symptoms making the persons unaware of condition. World Health Organization (WHO) has stated that around 1.3 billion people around the world suffer from hypertension and less than one in five have their blood pressure under control. It is also one of the leading causes of premature mortality. Hence an earlier diagnosis by regular screening and adequate management with life style modification and drugs is required for effective reduction in high blood pressure. (2)

Occupational health deals with various health related aspects and workplace safety. It focuses on the primary prevention of hazards. The health of occupational workers has various determinants at workplace leading to accidents, communicable diseases like Tuberculosis, anthrax, brucellosis and noncommunicable diseases like diabetes, hypertension and stress related states.(3) Sanitary workers have higher tendency to develop hypertension as they spend most of their time in polluted or stressful environments. They are also more prone to lead unhealthy lifestyle like irregularities of meals and sleep pattern, alcohol and tobacco consumption.(4) In India, a systematic review revealed that around 33% of the urban population and 25% of the rural population are hypertensive.(5) Hypertension is a major cause of premature death worldwide. An estimated 1.28 billion adults aged 30–79 years have hypertension.(6) There is still a narrow focus on the burden of hypertension among sanitary workers. There is a need to generate evidence related to sanitary workers working inside the hospitals as it will help in taking measures for prevention and control of hypertension amongst this population. As per data available lots of study conducted for doctors, medical students, nursing staff etc. But less amount of study conducted on sanitary workers. This study focused on hypertension status among them for early detection of elevated blood pressure to decrease the morbidity hence, the current study was conducted to determine the prevalence and associated risk factors of hypertension among sanitary workers employed in tertiary care centre in Amravati city.

AIM AND OBJECTIVE:

1. To determine the prevalence of hypertension and associated risk factor among the sanitary workers in tertiary care centre of Amravati.
2) To suggest the recommendation based on study findings.

MATERIALS AND METHODS:

The aim of this study was to determine the prevalence of hypertension and associated risk factor among the sanitary workers in tertiary care centre. The design for the present study was Cross sectional hospital based observational study**.** Study was conducted in premises of Dr.Panjabrao alias Bhuasaheb Deshmukh Memorial medical college and hospital Amravati. There are total 120 sanitation workers employed to provide sanitary services. All the sanitary workers employed for at least 6 months were eligible to participate in this study. Sampling method was convenient sampling technique (complete enumeration) & sample size was 112.The duration of the study was from November 2022 to December 2022. The study was carried out after the approval of Institutional Ethical Committee.

Data was collected by self developed questionnaire which include question regarding socio demographical profile, personal habits, personal dietary habits, questions about exercise, question about family history of hypertension and blood pressure measure with the help of manual sphygmomanometer was used. Blood pressures were recorded in sitting position after five minute of resting time.

Blood Pressure (BP) Measurement

The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC VII) criteria for the classification of blood pressure was used. Normotensives were classified as systolic blood pressure (SBP) < 120 mmHg and diastolic blood pressure (DBP) < 80 mmHg, prehypertension (SBP 120–129 mmHg or DBP 80–89mmHg), hypertension stage 1 (SBP 140–159mmHg or DBP 90–99mmHg), and hypertension stage 2 (SBP ≥ 160mmHg or DBP ≥ 100mmHg) (1)

Anthropometric Measurement

A dual-purpose weight and height scale was used to measure body weight of participants to the nearest 0.1kg and height to the nearest 0.1cm with participants standing upright in a relaxed posture, heels together, feet slightly spread without shoes, and in light clothing Body mass index (BMI) was calculated by dividing weight (kg) by the square of the height in meters (m^2). Using the WHO classification of obesity, underweight was defined as BMI < 18.5kg/m^2, overweight as BMI ≥ 25.00 kg/m^2, obesity class I as BMI 30.00–34.99kg/m^2, obesity class II as BMI 35.00–39.99kg/m^2, and obesity class III as ≥40kg/m^2 (7).

Total 112 sanitary workers were included as a study participant from tertiary care hospital. Before the measuring blood pressure and collecting the information from participant we explain the purpose of study and gained their support. Inform consent was taken from the study participants.

Inclusion Criteria:
1) All sanitary workers who willing and giving consent for collection of data in the hospital.
2) Known case of hypertension.

Exclusive Criteria:
1) Other hospital staff
2) Not willing to participate in study & for giving the consent.

Statistical Analysis:
After collection of data it enter into SPSS 16 version software and proportion of study variable were calculated and Test of Significance Chi-square test was used to test the association between risk factors and hypertension whether it was significant or not. A $p < 0.05$ was considered as statistically significant for all analyses.

RESULTS:
The study involved 112 health workers with 78 (69.6%) being female and the rest males 34 (30.4%). The mean age of the participants in this study was 40.5 ± 7.5 ranging from 22 years to 58. Most of the participant belongs to 41-50 years of age (49%). Most of participants were educated up to high school and 67.9 % were Hindu by religion .Majority of the participants 79.5% belongs to class four socioeconomic classes. Most of the participants 74.10% were having a mixed diet pattern and 25.9% was vegetarians. The nutritional status depicted that the majority 58.9% of the participant belonging to normal status, 22.3% were overweight, 6.2% were obese while 12.4% are underweight. 80.4% participant not doing any type of exercise. However 38.4% was using tobacco and its related products. Few participants 17% was consuming alcohol. Most of the tobacco user and alcoholic participant were chronic in nature. (See Table no 1)

Table 1: Sociodemographic Profile Of Study Participants (n=112)

Variables	Subgroups	Frequency	Percentage %
Age	21-30 year	10	8.9
	31-40 year	45	40.3
	41-50 year	49	43.8
	51-60 year	08	7.1
Gender	Male	34	30.4
	Female	78	69.6
Education	Graduate or post-graduate	14	12.5
	Intermediate or post high school diploma	18	16.1
	High school	65	58.0
	Middle school	8	7.1
	Primary school	7	6.2
Religion	Hindu	76	67.9
	Muslim	1	.9
	Others(Buddhist & Christian)	35	31.2
Socioeconomic class	Class 2	10	8.9
	Class 3	13	11.6
	Class 4	89	79.5
Diet pattern	Vegetarian	29	25.9
	Non Vegetarian	09	8
	Mixed	74	66.1
Nutritional status	Underweight (<18.5)	14	12.5
	Normal (18.5to24.9)	66	58.9
	Overweight(25to29.9)	25	22.3
	Obese (>30)	7	6.2
Exercise	Yes	22	19.6
	No	90	80.4
Smoking	Yes	43	38.4
	No	69	61.6
Alcohol	Yes	19	17
	No	93	83

Using the JNC VII criteria for the classification of blood pressure, 28 (25%) and 53 (47.3%) of the sanitary health workers presented with hypertension and prehypertension, respectively

Table no 2 showed that the overall prevalence of hypertension & Prehypertension among sanitary workers was found to be 25% & 47.3%. Five participants (4.5%) were known cases of hypertension and 23 cases (20.5%) were newly diagnosed cases of hypertension.

Prevalence of hypertension increased progressively with age, from 31.3% in 31-40 years of age to 62.5% in 51-60 years of age. (Table3). The difference was found to be statistically significant ($p<0.05$) . The overall prevalence of hypertension was significantly higher in men (35.2%) than in women (20.5%) but it was not significant. ($p>0.05$)

The prevalence of hypertension among overweight (44%) and obese (57.1 %%) groups was higher than whose BMI was within the normal range (19.6%) It was found to be statistically Significant ($p<0.05$)(Table 3). Smoking, alcohol intake and lack of exercise showed statistically significant association with prevalence of hypertension.

There was a clear inverse relation to dietary patterns and the prevalence of hypertension ranged from 27.2 % among workers with vegetarian diet to 22.9 % among those with mixed diet patterns. ($p>0.05$) (See Table no -3)

Table 2: Prevalence of Hypertension among Study Participants

Characteristics	Frequency	Percentage
Overall Prevalence	28	25%
Known Cases	05	4.5%
Newly diagnosed Cases	23	20.5%
Prehypertension	53	47.3%

Table 3: Association Of Behavioral And Anthropometric Factors Of The Study Participants With Hypertension.

Risk factors		Hypertension n-28	Normal n-84	Total n-112	P value
Age group in Year	20--30	0	10(100)	10	<0.05*
	31--40	6(13.3)	39(86.7)	45	
	41--50	17(34.6)	32(65.4)	49	
	51--60	5(62.5)	3(37.5)	8	
Gender	Male	12(35.2)	22(64.8)	34	>0.05 NS
	Female	16(20.5)	62(79.6)	78	
Nutritional Status BMI (Kg/m2)	Underweight	0(0)	14(100)	14	P<0.05*
	Normal	13(19.6)	53(80.4)	66	
	Overweight	11(44)	14(56)	25	
	Obese	4(57.1)	3(42.9)	7	
Smoking	Yes	19(44)	24(56)	43	P<0.001
	No	9(13)	60(87)	69	
Alcohol	Yes	9(47.3)	10(52.7)	19	P<0.05*
	No	19(20.4)	74(79.6)	93	
Exercise	Yes	9(40.9)	13(59.1)	22	P<0.05*
	No	19(21.1)	71(78.2)	90	
Diet Pattern	Vegetarian	8(27.5)	21(725).	29	p>0.05N
	Non-Vegetarian	3(33.3)	6(66.7)	9	
	Mixed	17(22.9)	57(77.1)	74	

Figures in parenthesis indicate percentage

*Significant **highly significant NS -Not significant

DISCUSSION:
The present cross sectional hospital based observational study was conducted among sanitary workers in tertiary care hospital. The overall prevalence of hypertension was found to be 28 out of 112 (25 %.) Cross sectional Study from Puducherry, South India by author Venkatachalam Jayaseelan, et.al (2020) conducted among sanitary workers employed in tertiary care centre reported prevalence of hypertension as 36.7 %.(4) which was higher than present study.

Other study by author Bharti OK et.al.conducted at Shimla municipality in Himachal Pradesh, India.(2016) reported 18.5% prevalence of hypertension among sanitation workers.(8) . Present study found higher prevalence than this study.

Study of Hypertension by author Anchala R, Kannuri NK et.al (2014) Systematic review on hypertension among general population in India reported prevalence 29.8 %.(9). This difference in findings can be attributed to difference in the study settings and difference in nature of work between sanitary workers in community and sanitary workers employed in healthcare institutes.

Present study showed that, 35.2% male participant was hypertensive and 20.4% female participant was hypertensive. Most of the participant belonging to 41-50 (49%) age group. The nutritional status depicted that the 22.3% from overweight, 6.2% from obese category they was more prone to hypertension. 80.4% participant not doing any type of exercise. There was a statistically significant difference found between age, gender, high BMI and lack of exercise and prevalence of hypertension. ($p<0.05$)

Study of life style related risk factors for undiagnosed elevated blood pressure by author Kalyani et al (2020) found that participants age 40-45 years had 1.45 times higher chances of having hypertension. Female had 2.38 times more chances for hypertension than male participants. Participants not doing exercise have 1.16 times higher chances of hypertension than those exercising for more than 30 minutes. A person with a BMI higher than or equal to 25-29.9 kg/m2 were 1.1 times more chances for having hypertension rather than normal BMI.(5) Current study showed 38.4% participants used tobacco and related substances and 17% were consuming alcohol. Most of the tobacco user and alcoholic study participant were chronic in nature. These are under high risk group for hypertension as there was statistically significant difference between smoking, alcohol and hypertension.($p<0.05$)

Similar findings were also found in Study from Puducherry, south India by Venkatachalam Jayaseelan et.al (2020) older age group, obesity, tobacco and alcohol were significant determinants of hypertension among sanitary workers (4).

Limitations of the study were smaller sample size which limits the generalizability of study results. Since, this was a cross-sectional study hospital based study; it is difficult to assume causal relationship between exposure and outcome. In spite of these limitations, the current study provided important baseline information on the burden of hypertension among sanitary workers employed in our tertiary care hospital.

Present study had identified 20.5% newly diagnosed cases & 47.3% had pre hypertension. These newly diagnosed cases were provided appropriate referral services for further management at the end of the study.

CONCLUSION & RECOMMENDATIONS:

Present study conclude that, male participant are more hypertensive than female. So, they should be rule out for undiagnosed elevated blood pressure. They are unaware of their elevated blood pressure problem at mid- adults age and reach out to health-care facility only, when treatment is the only choice. Life style modification plays a most important role to control the elevated blood pressure. Our study signifies the need of regular health education session about hypertension and its risk factor and guidance about treatment support for better disease management. One important measure that needs strict implementation is pre-placement screening of blood pressure for hypertension. After recruitment, further periodic screening need to be done at least every year. There should be integrated approach between medicine department, Nutrition department and Psychiatry department. Development and implementation of protocols and guidelines for the screening and management of hypertension for vulnerable occupational groups can be done at every Institutional level. Incorporation of multiple components in multiple levels can be done in existing interventions to achieve better control of hypertension.

Authors Contribution:

Conception and design, acquisition of data done by Dr. Vishal Avachare & Dr. Vithal Khanande. Analysis and interpretation of data and drafting the article done by Dr. Vinod Wasnik & revising it critically for important intellectual content has been done by the author Dr. Ajay Jawarkar.

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Ethical Approval: The study was approved by the institutional ethics committee

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