



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 10, Issue, 01(E), pp. 30489-30492, January, 2019

**International Journal of
Recent Scientific
Research**

DOI: 10.24327/IJRSR

Research Article

PREVALENCE AND CAUSATIVE FACTORS OF HYPERTENSION IN 20-30 YEARS AGE GROUPS

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DOI: <http://dx.doi.org/10.24327/ijrsr.2019.1001.3069>

ARTICLE INFO

Article History:

Received 12th October, 2018
Received in revised form 23rd
November, 2018
Accepted 7th December, 2018
Published online 28th January, 2019

Key Words:

Hypertension, Prevalence.

ABSTRACT

INTRODUCTION: Approximately 50 million individuals in the united states and 1 billion worldwide are affected by hypertension (1) Hypertension affects about 26% of adult population worldwide (6,7),there are , however, important differences in prevalence between populations and ethnic groups(2-3-4). This cross sectional study was conducted to find out the prevalence & associated risk factors in Kanpur district (urban and rural). **MATERIAL & METHODS:** The present study was conducted in patients age group 20-30 years between JAN 2013-2014, attending the G.S.V.M. medical college & associated hospital, Kanpur. Total 1000 patients completed the study. Blood pressure, fasting lipid profile, Kidney function test ,Ultrasound whole abdomen, Endocrine profile were measured along with Odds of hypertension among patients with risk factors were calculated .Data analysis was done using SPSS version 12. **RESULTS:** The prevalence of hypertension was 12% among these subjects with 91% having primary & 9% having secondary hypertension.

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INTRODUCTION

High blood pressure is a major risk factor and better control can lead to prevention of 300,000 of the 1.5 million annual deaths from cardiovascular disease in India⁽¹⁾. Hypertension is one of the most important modifiable risk factor for CVD⁽²⁾. Both systolic and diastolic hypertension are important predicting risk factor of CVD, CKD & Stroke⁽³⁾ Globally 51% of stroke and 45% of IHD deaths are attributable to high blood pressure⁽⁴⁾. Farag *et al* 2014 among predictors of hypertension -Old age, BMI >23kg/m², waist circumference ,sedentary occupation, less education, diabetes mellitus ,presence of protein urea and raised serum creatinine were significant predictor of hypertension⁽⁵⁾. As it is hidden beneath an outwardly asymptomatic appearance, the disease does immense harm to the body in the form of 'Target Organ' damage, hence, the WHO has named it the 'Silent Killer'⁽⁶⁾.

(BMI= Body mass index, CVD =Cardio vascular disease, CKD =Chronic kidney disease.)

Prevalence: In India the prevalence of hypertension in the late nineties and early twentieth century ranging from 2-15% in the urban India and 2-8% in the rural India. According to

Directorate General of Health, Government of India the overall prevalence of hypertension in india by 2020 will be 159.46/1000 population⁽⁷⁾.

Table 1 recent studies 2000-2012 on prevalence of hypertension in urban and rural Indian population. ⁽⁸⁾

FIRST AUTHOR	Year	Place	AGE(Yr)	SAMPLE SIZE	Prev. (%)
Urban Population					
Anand MP		-----Mumbai	30-60	1662	88653
Gupta PC		Mumbai	>35	2935	19973
Prabhakaran D		Delhi	20-59	2350	47.9
Reddy KS	2000 2004	National	20-69	2262	30.0
Mohan V	2005 2006	Chennai	>20	1746	27.2
Kaur P	2007 2007	Chennai	18-69	-----	20.0
Yadav S	2008	Lucknow	>30	-----	27.2
Rural Population					
Hazarika	2004	----	-----	-----	32.2
Thankappan	2006 2008	Assam	>30	3180	33.3
Krishnan A	2009 2009	Kerla	>30	2159	36
Todkar SS	2010	Haryana	15-64	2828	9.3
Vijay kumar G	2010	Maharashtra	>20	1297	7.2
Bhardwaj R		Kerla	>18	1990	36.1
Kinra S		Himachal	>18	1092	35.9
		National	20-69	1983	20.0

PREV = Prevalence.

MATERIAL & METHODS

This study was conducted in the department of medicine of G.S.V.M. Medical College, Kanpur during January 2013 to

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January 2014 in OPD, IPD & ED Patients to evaluate the prevalence and causative factors of hypertension in 20 –30 year age group patients. A total of 1000 patients completed the study. **Inclusion criteria:** all the patients between 20 to 30 year age group attended in the OPD, IPD, and ED with given written consent for the study. **Exclusion criteria:** patients not giving consent for the study. A working Performa was developed to record the history and complaints included headache, dizziness, chest pain, palpitation .Patients were investigated according to the working Performa included blood sugar , lipid profile, renal profile, cardiac profile evaluated at the end of study for the % of factors as secondary cause of hypertension & prevalence in the area. Recent JNC VII⁽⁹⁾ and WHO⁽¹⁰⁾ classification were used for classifying the hypertension.

RESULTS

Table-2 shows gender wise demographic distribution (n= 750) 75% were male, (n=250) 25% were female.

Table-3 shows age adjusted distribution of hypertensive subjects , the total 120 patients were found to be hypertensive of which 24% patients were belongs to 20-25 year age group and 76 % patients were belongs to 25-30 year age group. The number of hypertensive patients was significantly higher in study age group of 25-30years.

Table -4 shows the prevalence, total 1000 subjects studied of which 88% (n=880) were non hypertensive and 12% (n=120) were hypertensive.

Table-5 Shows total subjects and non hypertensive & hypertensive cases.

Table-6 type of hypertension in study group 91% (n=110) have primary hypertension and 9% (n=10) patients have secondary hypertension.

Table-7 shows causative factors of secondary hypertension 90% patients have renal disease & 10% patients have endocrinal or vascular disease.

Table-8 shows risk factors association among hypertensive and non-hypertensive groups.

	Gender	Patient(n)	Percentage %
TABLE : 2 Gender distribution	Male	750	75
	Female	250	25
	Total	1000	100
TABLE :3 Age adjusted hypertension distribution	Age	HTN (n)	HTN (%)
	20-25	20	24
	25-30	100	76
TABLE :4 Prevalence	Subjects	HTN (n)	HTN %
	1000	120	12%
TABLE :5 Hypertension & non hypertensive	Total	Non HTN(n)	HTN n (%)
	1000	880	120 (12%)
TABLE :6 Hypertension distribution type	Total	HTN (n)	Primary.
	1000	120	110
TABLE :7 Secondary causes of hypertension	100%	12%	91%
	9%		9%
TABLE :8 Etiology	Renal (Parenchymal & Vascular)	Study Patient (%)	(n)
	Endocrinal	90%	9
	+	10%	1
	Other		

n = number, HTN = Hpertension

(1)Obesity was present in 30 patient of hypertension & 66 non-hypertensive subjects (p=.0001). (2) History of smoking present in 35 hypertensive & 34 non-hypertensive (p= .9052).

(3) family history of hypertension present in 50 hypertensive & 80 non-hypertensive(p=.0001).(3) Dys-Lipidemia present in 45 hypertensive & 50 non-hypertensive (p=.3522).

Table 8 HTN & Risk Factor

Risk factors	HTN n = 120		Non HTN n = 880		P Value
	(n)	%	(n)	%	
Family H/O	50	60%	80	70%	.0001
Obesity	30	36%	66	58%	.0001
Smoker	35	42%	34	29.9%	.9052
Dyslipidemia	45	54%	50	44%	.3522

n = number, HTN = Hypertension

DISCUSSION

Prevalence of hypertension & age: The prevalence of hypertension in the late nineties & early twentieth century in India ranging 2-15% in Urban India & 2-8% in Rural India⁽¹¹⁾. Anchala R *et al* 2014 meta analysis of prevalence 1950-2013 shows over all 29.8% (33.8% urban , 27.6 % rural) Indians are hypertensive⁽¹²⁾ . Our study is showing Age adjusted prevalence rate of 12% in a hospital based cross sectional study in kanpur district ; out of total 120 study subjects 83.4% (n= 100) male & 16.6 %(n=20) were females . In our study 24% patients were belongs to 20-25 year age group and 76 % patients were belongs to 25-30 year age group, so prevalence is increasing with aging.

Prevalence of hypertension & region: Dubey V D *et al* 1954 carried out earliest study in India among industrial workers of Kanpur documented 4% prevalence of hypertension⁽¹³⁾ . Our study at G S V M Kanpur 2013-2014 shows prevalence of 12%. ,Similarly Misra *et al* 2001 reported 12% prevalence of hypertension in slums of Delhi⁽¹⁴⁾, But southern states of India shows very high prevalence , Zachariah *et al* 2003 shows high overall prevalence of 54.5% in middle aged 40-60 years in Kerala⁽¹⁵⁾.. C R Rao *et al* 2013 a cross sectional community based survey in coastal Karnataka estimate similar high prevalence 43.3% (23.1% known cases & 20.2% newly diagnosed)⁽¹⁶⁾ . Hazarika *et al* 2002 reported 61% maximum prevalence in Assamese population aged 30 years and above⁽¹⁷⁾ .

Prevalence of hypertension & obesity: Zachariah *et al* 2003 says that increasing age and elevated BMI were associated with increased prevalence of hypertension⁽¹⁸⁾ .Bhopal R *et al* 2002 obesity is often mistaken for prosperity and health , public education to address such misconception and to promote healthy behavior , is essential and should be directed at both individual & community level⁽¹⁹⁾ Sjostrom C D *et al* 1999 weight loss clearly is one of the most potent non pharmacological means of lowering BP & ought to be the first line of treatment of hypertension⁽²⁰⁾ . Dyer A R *et al* 1990 Intersalt study in which hypertension and obesity correlation was searched out in 10079 men and women aged 20-60 year from 52 centers around the world, suggesting stronger association of systolic blood pressure with weight and obesity in men. The result of the analysis support the use of weight, with direct adjustment for height ,as a useful and practical substitute for BMI in analysis of the association of adiposity with blood pressure. ⁽²¹⁾ . Khan S B *et al* 2010 a total 111 study hypertensive patients 60 %(n=66) were obese. Obesity is directly correlated to hypertension as hypertension was significantly more common in obese CAD patients compared

with non-obese CAD patients⁽²²⁾. In our study out of 120 hypertensive patients 25% (n= 30) were obese.

Hypertension & risk factors & causes: The cause analysis in our hypertensive (n=120) patients shows that 91%(n=110) have primary hypertension & 9%(n=10) have secondary hypertension, of these secondary hypertensive's renal disease present in 90% , other 10% have endocrinal & vascular causes. The risk factor analysis shows that Family history of hypertension present in 41.67% (n=50), obesity present in 25% (n=30), dyslipidemia present in 37.5%(n= 45) history of smoking 29.17(n=35). Panja M et al, Among secondary causes, renal disease (parenchymal & vascular) remains most common cause (26.4%) of secondary hypertension in young individuals.⁽²³⁾

CONCLUSION

Prevalence of hypertension is increasing in young adult. The most common cause of hypertension in young adult is primary hypertension, with a strong family history. Secondary hypertension is strongly related to risk factors like changing life style in young too, like obesity, smoking, dyslipidemia. Secondary hypertension is mostly caused by renal pathology.

Conflict of Interests: The authors declare that there is no conflict of interests.

Acknowledgement

We would like to express our gratitude to Dr Arati Lalchandani, DM (Cardiology), Director, Professor and HEAD of the Department, PG Institute of Medicine, G S V M Medical college & hospital, Kanpur, for his most invaluable support in conducting the study.

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How to cite this article:

Kumar P and Prakash S. 2019, Prevalence and Causative Factors of Hypertension in 20-30 Years Age Groups. *Int J Recent Sci Res.* 10(01), pp. 30489-30492. DOI: <http://dx.doi.org/10.24327/ijrsr.2019.1001.3069>
