



Obesity Related Hypertension and Awareness of its Complications Among the People

Dr. C. Anjani Kumar	Assoc.Professor, Department of General Medicine, Dr.Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, China avutapalli, Krishna Dt, Andhra Pradesh, India
B. Sri Lekha	Undergraduate student, Dr.Pinnamaneni Siddhartha Institute of Medical sciences and Research Foundation, China avutapalli, Krishna Dt, Andhra Pradesh, India.
* G. Poojitha	Undergraduate Student, Dr.Pinnamaneni Siddhartha Institute Medical Sciences and Research Foundation, China avutapalli, Krishna Dt, Andhra Pradesh, India * Corresponding Author
Dr. T.V.D. SasiSekhar	Professor and HOD , Department of General Medicine, Dr.Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, China avutapalli, Krishna Dt, Andhra Pradesh, India
N.HarshaSai	Undergraduate, Dr.Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, China avutapalli, Krishna Dt, Andhra Pradesh, India

ABSTRACT

Aims & Objectives: In the study it was aimed to evaluate the prevalence of obesity and awareness of its relation with the hypertension among hypertensive study population.

Results: Out of 600 patients in our study, majority of patient's age was less than 55 years i.e., 64%. Females constitute majority of study population i.e., 61%. In our study people with BMI more than 25 were more prone to hypertension. Majority of patients are illiterate i.e., 68.7%. Majority of patients were aware that they were more prone to heart damage.

Conclusion: The awareness regarding hypertension and its relation with obesity is very poor amongst patients and normal people. Comprehensive workup in preventing complications and developing awareness is necessary.

KEYWORDS

hypertension, obesity, relation, prevalence, awareness.

INTRODUCTION:

Hypertension is a complex phenotype that arises from numerous genetic, environmental, behavioural, and even social origins. Obesity is one of the most prevalent risk factors for its development. Regardless of its etiology, however, hypertension is a highly prevalent and highly significant risk factor for the development of all manifestations of CVD, including coronary heart disease (CHD), stroke, heart failure (HF), aortic and peripheral arterial disease.^(1,2)

The number of hypertensive individuals is anticipated to nearly double from 118 million in 2000 to 213 million by 2025⁽⁴⁾. Asian countries like India are no less with regards to burden of disease where prevalence rate as high as 35% .⁽⁴⁾

Obesity has been consistently associated with hypertension and increased cardiovascular risk. Based on population studies, risk estimates indicate that at least two-thirds of the prevalence of hypertension can be directly attributed to obesity. Apart from hypertension, abdominal adiposity has also been implicated in the pathogenesis of coronary artery disease, sleep apnoea, stroke and congestive heart failure.⁽¹⁰⁾

Due to this high prevalence of both hypertension and obesity and their associated morbidity and mortality interventions

which can prevent them and their complications like reducing salt, fat, sugar, alcohol intake and smoking, increasing physical activity should be contemplated. ^(9,10)

There is insufficient documentary evidence with regards to the level of awareness, about hypertension in Indian population. Many questions remain unanswered as to what kind of awareness programmes are needed for whom^(8,9)

The Objectives of our study were to assess the prevalence of obesity amongst the hypertensives and its awareness.

MATERIALS AND METHODS:

This study was carried out at the Dr.Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, which is a tertiary care, teaching hospital which extends health care facilities to the rural population. The hypertensive patients, who attended the Department of Medicine during May 2015 to Jan 2016, were included in the study. 600 patients were recruited by a systematic random sampling, after obtaining their consents.

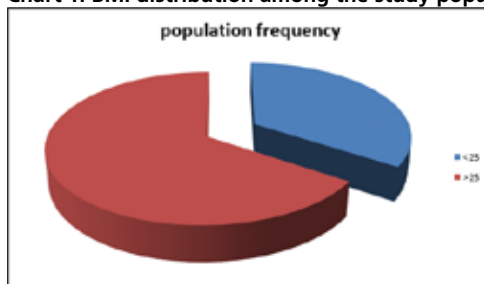
A standardized questionnaire with details pertaining to their sociodemographic profiles, anthropometry and other necessary details was prepared and data was collected and correlated.

RESULTS:

TABLE1: results of the study

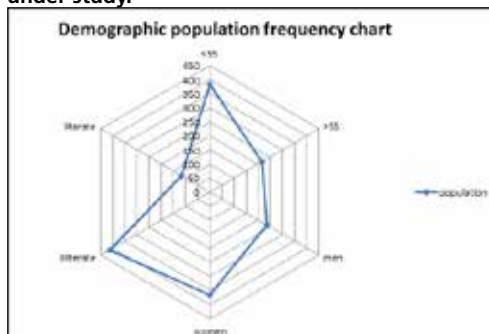
	Frequency	Percent
Age		
<55	384	64
>55	216	36
Sex		
Male	234	39
Female	366	61
BMI		
<25	206	34.3
>25	394	65.7
Literacy		
Illiterate	412	68.7
Literate	118	31.3
Total	600	100

Chart 1: BMI distribution among the study population.



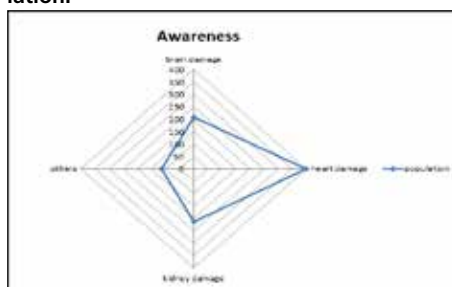
In the above pie chart representation we have seen that , there are about 34% of people under normalcy range of BMI and the remaining 66% are having body mass index greater than the normal resulting in obesity. Those people with these high values of BMI are mostly prone to hypertension.

Chart 2: demographic representation of the population under study.



Data was pooled from patients who attended Dr. PSIMS & RF, outpatient department between May 2015 to January 2016. The demographic characters and BMI rates are described in the Above Table . Out of 300 patients, 64% are of age less than 55 yrs and 36% are more than 55 yrs. Females constitute majority of study population i.e., 61%. Majority of patients are illiterate.

Chart3: awareness of complications among study population.



In the above table awareness of the complications of obesity related hypertension are being evaluated. There was a high awareness about cardiovascular complications when compared to that of the other complications.

DISCUSSION:

Hypertension is defined as systolic blood pressure ≥ 140 mm of Hg and diastolic blood pressure ≥ 90 mm of Hg. The relationship between obesity and hypertension is well established both in children and adults. The rising prevalence overweight and obesity in India has a direct correlation with the increasing prevalence of obesity-related co-morbidities; hypertension, the metabolic syndrome, dyslipidemia, type 2 diabetes mellitus (T2DM), and cardiovascular disease (CVD) ⁽¹²⁾

Obesity is a state of excess adipose tissue mass. Although not a direct measure of obesity , the most widely used method to gauge obesity is body mass index(BMI).Body mass index (BMI) is measured as a person's weight in kilograms divided by the square of his height in meter (kg/m^2)^(who 2016). Who guidelines were found to be inappropriate for the Indian population. So Indian guidelines for obesity are considered in my study.

Indian guidelines: Normal BMI: 18.0-22.9 kg/m^2 , Overweight: 23.0-24.9 kg/m^2 , Obesity: $>25 \text{ kg}/\text{m}^2$ ⁽¹¹⁾.

Excess weight gain is a major cause of increased blood pressure in most patients with essential hypertension, and also greatly increases the risk for renal disease. Obesity raises blood pressure by increasing renal tubular reabsorption, impairing pressure natriuresis, causing volume expansion due to activation of the sympathetic nervous system and renin-angiotensin system, and by physical compression of the kidneys, especially when visceral obesity is present. The mechanisms of sympathetic nervous system activation in obesity may be due, in part, to hyperleptinemia that stimulates the hypothalamic pro-opiomelanocortin pathway. With prolonged obesity, there may be a gradual loss of nephron function that worsens with time and exacerbates hypertension. Weight reduction is an essential first step in the management of obesity hypertension .

In our study, we have observed that the body mass index of the patient is playing a very major role in the variations of hypertensive measurements. Our study showed a massive conditioning influence of 65.7% prevalence of obesity amongst the hypertensive patients who attended our outpatient department. Indian J Med Res 128 ,December 2008 also quoted the same relationship between them making obesity as the significant factor predisposing to the pre hypertensive and hypertensive conditions.

Many studies have reported higher prevalence of obesity among women¹³ in our study we have noticed the same pattern of the women predominance and especially amongst the young age groups.

The excess obesity in the young population has also become the major threat for the early hypertension. Few studies ¹⁴shows that obesity is increasing in low age groups rapidly. This is due to the sedentary lifestyle habits increasing these days. Young people generally give little priority to their future health, so such interventions need to be conducted at some optimal age, be innovative, country specific and culturally acceptable. Even in our study we have observed the trends of prevalence i.e., about 64% in young people.

Even the literacy played a significant role in our study. And this showed high prevalence among the illiterate population. Making this as a stepping stone, the obesity related hypertensive conditions can be under controlled and under strict conditions they can even be eradicated.

CONCLUSION:

Blood pressure and obesity important modifiable risk factor for cardiovascular , kidney diseases and stroke. The awareness regarding hypertension and its relation with the obesity is very

poor amongst patients and normal people. It is necessary to educate the population about the effect of the obesity on hypertension and also its other devastating complications like cardiovascular and renal problems and establish early diagnosis and treatment facilities. This can improve the incidence and prevalence rates and maintenance of the better health. All this can only be possible through the awareness programmes and government health programmes.

REFERENCES:

1. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2013; 380 : 2224-60.
2. Gupta R. Trends in hypertension epidemiology in India. *J Hum Hypertens* 2004; 18 : 73-8.
3. Reddy KS, Shah B, Varghese C, Ramadoss A. Responding to the threat of chronic diseases in India. *Lancet* 2005; 366 : 1744-9.
4. Revised Draft Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013-2020 (version dated 11 February 2013). World Health Organization, 2013. Available from: http://www.who.int/nmh/events/2013/revised_draft_ncd_action_plan.pdf., accessed on March 2, 2013.
5. Devi P, Rao M, Sigamani A, Faruqui A, Jose M, Gupta R, 8. et al. Prevalence, risk factors and awareness of hypertension in India: a systematic review. *J Hum Hypertens* 2013; 27 : 281-7.
6. Scicchitano P, Gesualdo M, Carbonara S (2013) What's New and What Gaps in 2013 European. *Cardiology and Angiology: An International Journal* 3: 181-191
7. Guidelines for the Management of Arterial Hypertension: A Reappraisal. *CA* 2015. 3: 181-91.
8. Rodgers A, Lawes C, MacMahon S. Reducing the global burden of blood pressure related cardiovascular disease. *J Hypertens* 2000; 18 (Suppl) : S3-6.
9. Mohan S, Prabhakaran D. 12. Review of salt and health: situation in South-East Asia Region. Background paper for the Expert Meeting on Population Sodium Reduction Strategies for Prevention and Control of Noncommunicable Diseases in the South-East Asia Region. New Delhi: WHO SEARO; 2012.
10. *Journal of clinical hypertension*.
11. <http://www.japi.or> .
12. (ref: Gupta R, Gupta VR, Sarna M, et al. Prevalence of coronary heart disease and risk factors in an urban Indian population: Jaipur Heart Watch-2. *Indian Heart J* 2002;54(1):59-66. 3. Gupta R, Misra A. Type 2 diabetes in India: Regional Disparities. *Br J Diabetes & Vascular Dis* 2007;7:12-16)g/february_2009/R-1.pdf)
13. <https://www.niddk.nih.gov/health-information/health-statistics/Pages/overweight-obesity-statistics.aspx> , <http://www.jabfm.org/content/24/1/75.full> .
14. <https://www.ncbi.nlm.nih.gov/pubmed/26883372>.