International Journal of Health Sciences and Research
www.ijhsr.org ISSN: 2249-9571

Original Research Article

The Prevalence of Hypertension and Task Analysis of Corporates Working in Multinational Companies under the Age of 40 Years

Shweta Bajaria[1], Dr. Unnati Pandit[2]

[1]Physiotherapist, [2]Professor and HOD,
School of Physiotherapy, D.Y. Patil University, Navi Mumbai, India

Corresponding Author: Dr. Unnati Pandit

ABSTRACT

Background: Hypertension is a modern day's epidemic and it is becoming a public health emergency worldwide, especially in the developing countries like India. Hypertension is common after the age of 40 years but today even the younger working group is becoming hypertensive as they work under a lot of mental stress, trendy smoking and drinking, less physical activity, etc which may set in hypertension as at a relatively younger age.
Objectives: To study the magnitude of the problem of hypertension in the high end corporates, effects of lifestyle habits and workplace habits on prevalence of hypertension.
Methods: A cross-sectional study was conducted of corporates aging less than 40 years in Navi Mumbai and Mumbai working in multinational companies. The data was collected by circulating a validated questionnaire and the blood pressure was assessed on its submission.
Results and Conclusion: The prevalence of hypertension amongst the population was 35%. The study showed that hypertension was more common when the BMI was high, lack of exercise, smoking, alcohol consumption, increased levels of stress, cardiovascular disease, genetic linkage.100% population suffered from stress and stress management was the need of an hour. Also, hypertension was more common when there was poor posture, work related stress, visual stress, increased pain levels due to static muscle loading, pain, headaches. The effects of different risk factors of hypertension were observed here. This study may help in identifying the common profile of hypertensive or persons at risk, which may further help in identifying the risk group and help in its prevention.

Key words: Hypertension, Task-analysis, corporates, under the age of 40, multinational companies.

INTRODUCTION

Hypertension is a modern day's epidemic and it is becoming a public health emergency worldwide, especially in the developing countries like India. [1,2] It has been observed that cardiovascular diseases are increasing in developing countries and it has been estimated that cardiovascular diseases will be the major cause of morbidity and mortality in these countries by the year 2020. [3] They account for nearly a third of all deaths worldwide. [4] It is seen that majority of the hypertensive patients remain asymptomatic, only few of them develop some symptoms like headache, giddiness and irritability. That's why hypertension is known as silent killer. [5]

Hypertension is common after the age of 40 years [6] but today the scenario is quite different as the younger working group may be under a lot of mental stress, trendy smoking and drinking, less physical activity, attaining abnormal postures while working, [7] static loading of muscles etc which may set in hypertension at a relatively younger age.

Many risk factors leading to hypertension are modifiable and therefore provide an opportunity for preventive efforts. [7] Hence any intervention that can successfully prevent or reduce hypertension should be viewed as promoting cardiovascular health of individuals. The prevalence of some chronic diseases like hypertension in such populations is documented by very few studies in India [5,8] and at global level. [9] A study of such nature will help us to understand the problem and to make appropriate interventions on a larger scale for the benefit of such a vulnerable group. We therefore conducted this study to determine the prevalence of HTN among white collar workers of Mumbai.

Job Analysis:

- **Job Description:**
  Desk top work, Using a computer, Typing continuously, Work must be efficiently completed within the deadline date, Working in an air conditioned environment, Intensive and sedentary work
- **Job Demands:**
  Concentration, Repetitive movements of the wrist and fingers inorder to type, Efficiency, Prolonged sitting, 6- 7 hours of using a computer

Aims: Understanding the prevalence of hypertension and task analysis of the corporates working in multinational companies under the age of 40 years.

Objectives: To study the magnitude of the problem of hypertension in the high end corporates, effects of lifestyle habits and workplace habits on prevalence of hypertension.

MATERIALS & METHODS

A cross-sectional study was conducted of 200 corporates aging less than 40 years (31 ± 4years) in Navi Mumbai and Mumbai working in multinational companies. The data was collected by circulating a validated questionnaire and the blood pressure was assessed on its submission. The questionnaire was drafted following with due deliberations of the relevant literature and thereby validated with an expert in the field. The questionnaire contained information on various aspects of lifestyle habits and workplace habits. The study was approved by the Ethics Committee at D. Y. Patil University and written consent was taken from all the participants.

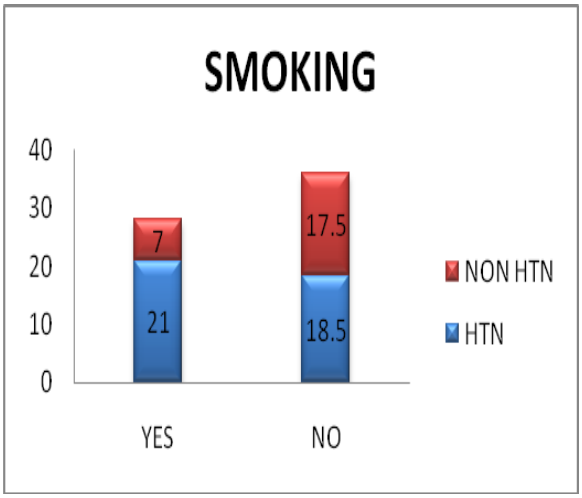
The Blood Pressure was assessed using a sphygmomanometer and a stethoscope. [10] Anthropometric measurements of height and weight were noted. BMI values of the individuals were calculated and classified according to the revised consensus Body Mass Indices for Asian population by WHO. [11,12]

Inclusion criteria: Both Male and Female

Exclusion criteria: Workers above the age of 40 years and subjects not willing to participate in the study.

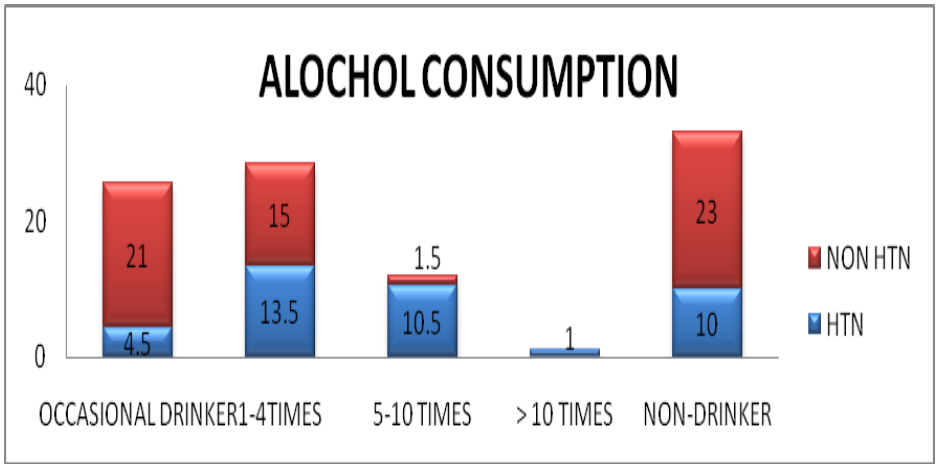
The data was analyzed and then presented in the graphical form. The data was processed using descriptive statistics and percentages were used to depict proportions.

OBSERVATION AND STATISTICAL ANALYSIS



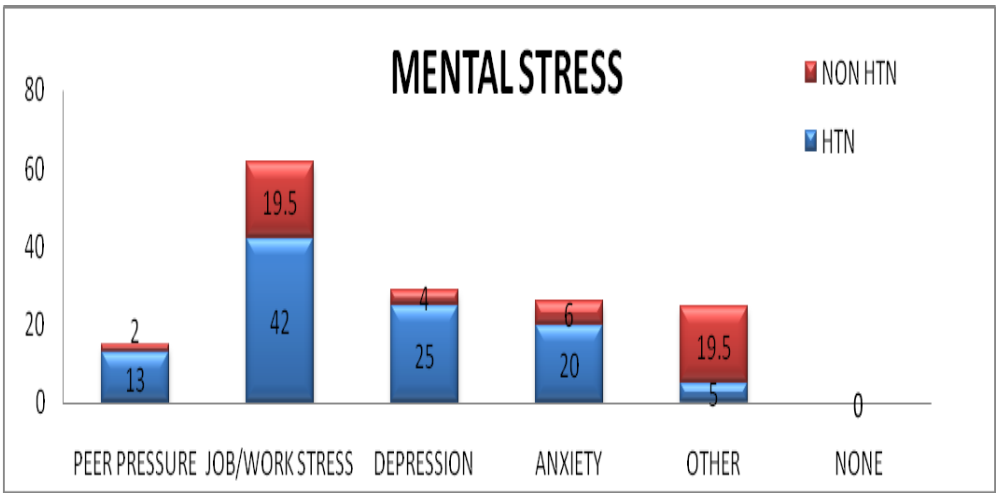
GRAPH-1(A) Bar Graph Showing the Smoking Population In Percentage

The prevalence of hypertension was found to be significantly higher in the smoking population.



GRAPH-2: Bar Graph Showing The Alcohol Consumption On Weekly Basis Of The Population In Percentage

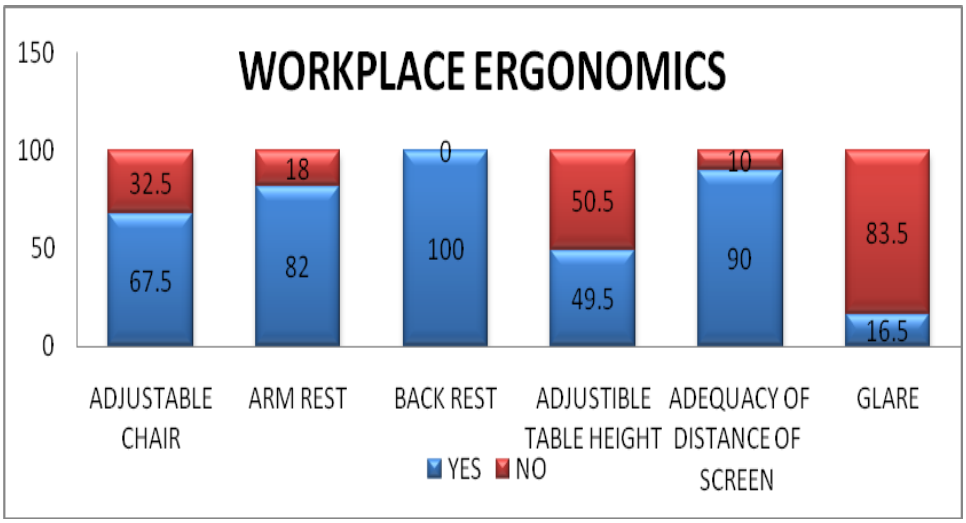
Hypertension was significantly prevalent in the population with regular alcohol consumption habits.



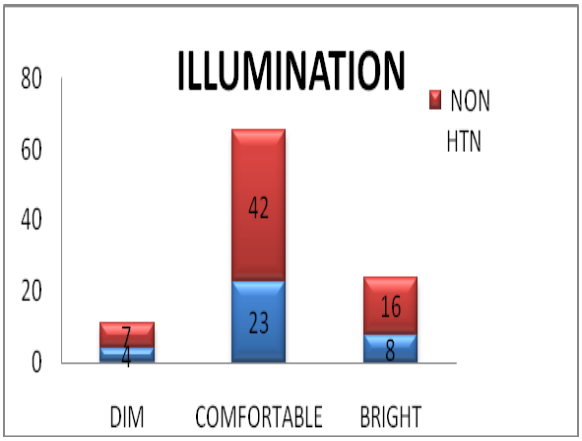
GRAPH-3: Bar Graph Showing The Levels Of Mental Stress In The Population In Percentage

100% population suffered from stress in one form or the other.

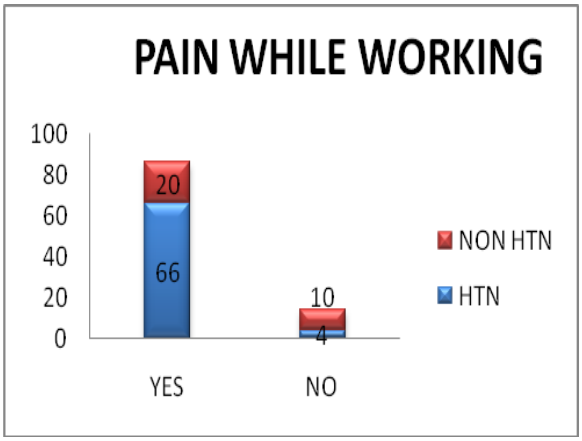
Hypertension was significantly higher in people suffering from anxiety, depression and peer pressure



GRAPH-4(a): Bar Diagram Showing the Workplace Ergonomics Of The Population In Percentage



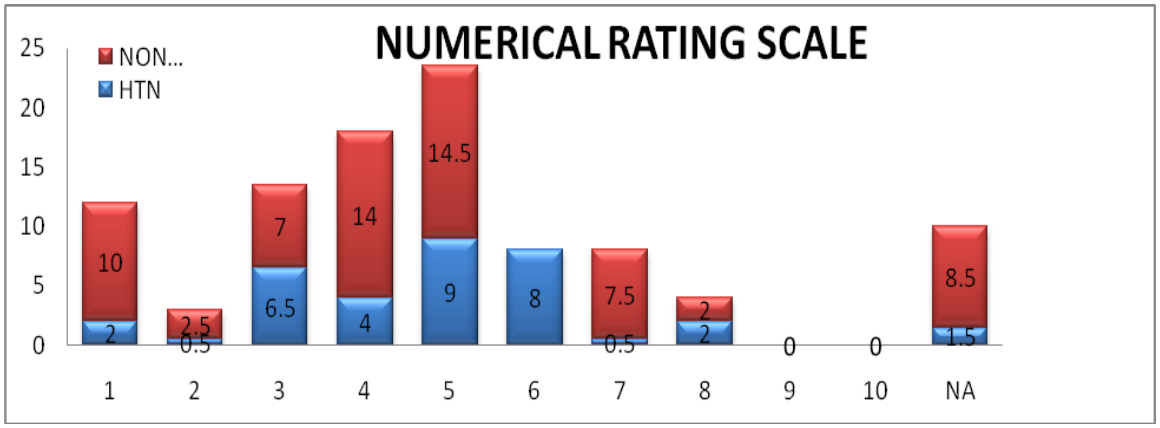
GRAPH-4(B) Bar Graph Showing The Kind Of Illumination At The Workplace In Percentage



GRAPH-5(a) Bar Graph Showing The Percentage Of Population Suffering From Pain While Working

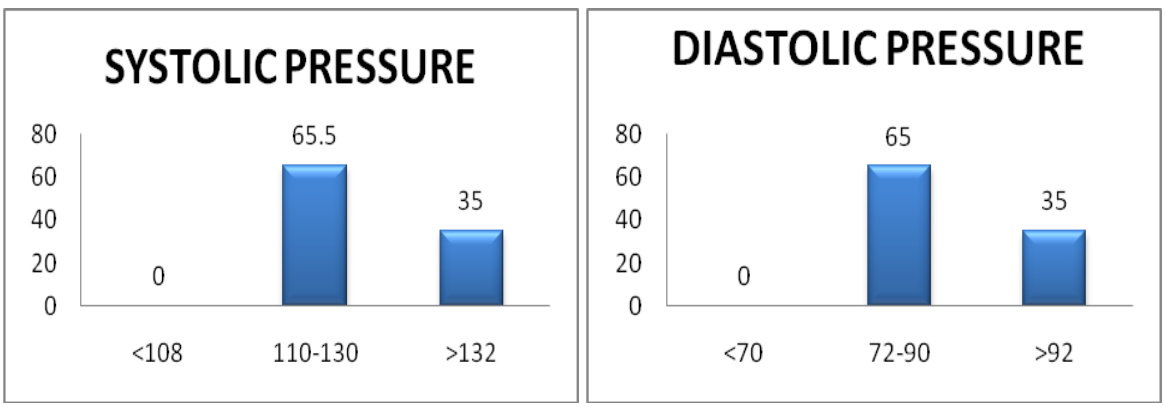
The workplace ergonomics showed that population was well equipped with good ergonomic equipments but had a poor way of using of it. Although 100% population had back support, only 79% of the population used it.

94% of the hypertensive population had pain while working. Also pain can affect the performance at work which can be stressful. The major areas which were painful included the neck, upper back, lower back amongst many others.



GRAPH-5 (b) Bar Graph Showing The Score Of NRS By The Population While Working In Percentage

The mean pain score of the population is 4 with and the mean score of the hypertensive population is 5.



GRAPH-6 Bar Graph Showing The Systolic and Diastolic Blood Pressure Of The Population In Percentage.

The mean of the systolic blood pressure of the population is 126.5 mm/hg with a standard deviation of 8.6mm/hg.
The mean of the diastolic blood pressure of the population is 86.32 mm/hg with a standard deviation of 6.7 mm/hg.

RESULT

The prevalence of hypertension amongst the corporates of the sampled population was 35 % i.e. 70/200 people were hypertensive. This established higher prevalence of hypertension in the younger age cohort.

DICUSSION

We report the results of a study (N = 200) of the prevalence of hypertension among corporate professionals working in multinational companies in the city of Mumbai and Navi Mumbai of India. The focus of our study is on the age gradient (with a focus on the younger age group) of hypertension prevalence as well as exploring the association of psychosocial predictors of risk related to lifestyle and workplace environment. This establishes higher prevalence of hypertension in the younger age cohort.

There is a high prevalence of hypertension in the study population. It is quite appalling that 35% (70 of 200 people) of the population is hypertensive. Males were more affected than females.

Asians are predisposed to be hypertensive a decade earlier compared the developed countries. [13-15] Our study suggests that hypertension in corporate professionals occurs a decade earlier compared to the rest of India and two decades earlier compared to developed countries. [16] This suggests that if untreated, these professionals would go on to develop cardio-vascular diseases at an early age.

There were several studies done in India suggesting increasing trends in the prevalence of hypertension in urban subjects over the last four decades compared to the people in rural areas. [16-23] Our results are in conformity with earlier results in the general population but suggest that corporate professionals are at higher-risk to get hypertension and are affected a decade earlier compared to earlier available evidence.

BMI is widely used in adults to assess overweight and obesity, which is a known risk factor in hypertension and other life style related diseases. [24] Amongst the prevalent cases, a close relation of increased BMI was seen where the average BMI of prevalent cases was 25.44 (overweight category) with standard deviation of 3.87. Our study showed that about 43% of the population lived a sedentary life with no exercise or exercising less than once in a week.

The nicotine content in cigarette smoke acutely raises blood pressure, even in addicted smokers. [25] No tolerance develops, so the blood pressure remains high as long as the individual continues to smoke. [26] This is supported by the present study that prevalence of hypertension was significantly higher who were smoking regularly. 28% of the population smoked currently of which 16.5% of the population was hypertensive. Higher level of hypertension among past smokers may be due to stopping smoking after diagnosis of established hypertension and due to the damage to the arteries. [27]

Alcohol consumption causes increased sympathetic nervous system activation and discharge of sympathetic amines. Loss of relaxation due to inflammation and oxidative injury of the endothelium by angiotensin II leading to inhibition of endothelium dependent nitric oxide production is the major contributor of alcohol induced hypertension. [28] About 58% of the prevalent population drink alcohol regularly while 42 % of the inclusive population drink regularly and are at a higher risk of developing hypertension.

100% population suffers from stress in one form or the other. Maximum population as high as 61.5% is stressed due to job related work. The body produces a surge of hormones in stressful situation

causing the heart to beat faster and blood vessels to narrow. [29] Overall studies show that stress does not directly cause hypertension but it can have an effect on its development. Prolonged stress, nervousness, irritability, insomnia are known to increase the blood pressure. [30]

94% of the hypertensive population had pain while working. Acute pain leads to generalized arousal and increased sympathetic nerve activity. In proportion to the magnitude and duration of the nociceptive stimulus, the spinal reflexes activate the sympathetic nervous system, increases total peripheral resistance, heart rate and stroke volume. [31] Prolonged static muscle loading with pain can lead to hypertension. Also pain can affect the performance at work which can be stressful. 57.5% of the population had pain in the neck region, about 61% of them in upper back and 48% in the lower back. These were the major areas affected amongst many others. This is possibly due to the faulty posture attained by the corporate while working.

CONCLUSION

The prevalence of hypertension amongst the population was 35%. We found a high prevalence of hypertension in the study population. There is a great opportunity for the primary prevention of (cardio-vascular diseases) through the creation of awareness among corporate professionals.

Since 100% population suffered from stress, stress management is the need of the hour.

Our study showed that hypertension was more common when the BMI was high, lack of exercise, smoking, alcohol consumption, increased levels of stress, cardiovascular disease, genetic linkage.

Also, hypertension was more common when there was poor posture, work related stress, visual stress, continuous working, increased pain levels due to static muscle loading, pain, headaches.

REFERENCES

1. Chockalingam A, Balaguer-Vinto I (eds). Impending global pandemic of cardiovascular diseases: challenges and opportunities for the prevention and control of cardiovascular diseases in developing countries and economies in transition. World Heart Federation. Barcelona: Prous Science 1999.
2. Reddy KS, Yusuf S. Emerging epidemic of cardiovascular disease in developing countries. Circulation Feb 1998;97:596–601.
3. Murray CJ, Lopez AD, Colin D Mathers, Claudia Stein. The global burden of disease: a comprehensive assessment of mortality and disability from disease, injuries and risk factors in 1990 and projected to 2020. Cambridge, Mass: Harvard School of Public Health 1996:50
4. World Health Organization. Reducing risks, promoting healthy life. Geneva, Switzerland: The World Health Report. 2002.;248.
5. Momin, M. H., Desai, V. K., &Kavishwar, A. B. Study of socio-demographic factors affecting prevalence of hypertension among bank employees of Surat City. Indian journal of public health. 2012; *56*(1), 44
6. R. S. Vasan, A. Beiser, S. Seshadri et al., "Residual lifetime risk for developing hypertension in middle-aged women and men: the Framingham Heart Study,The Journal of the American Medical Association,2002, 287,8,1003–1010.
7. Babu, G. R., Mahapatra, T., &Detels, R. Job stress and hypertension in younger software professionals in India. Indian journal of occupational and environmental medicine. 2013, 17(3), 101.
8. Maroof KA, Parashar P, Bansal R, Ahmad S. A study on hypertension among the corporate employees of Meerut district of Uttar Pradesh. Indian J Public Health 2007; 51:225-7.
9. Konradi AO, Rotar OP, Korostovtseva LS, et al. Prevalence of metabolic syndrome components in a population of corporate employees from St. Petersburg, Russia. Metabolic Syndrome Related Disorders 2011;9:337-43.
10. Ogedegbe G, Pickering T. Principles and techniques of blood pressure measurement. Cardiol Clinics journal. 2010;*28*:571–586.

11. World Health Organization. Obesity: preventing and managing the global epidemic. Report on a WHO Consultation on Obesity, Geneva, 3–5 June, 1997. WHO/NUT/NCD/98.1. Technical Report Series Number 894. Geneva: 2000.
12. Anoop Mishra. Ethnic-Specific Criteria for Classification of Body Mass Index: A Perspective for Asian Indians and American Diabetes Association Position Statement. Diabetes Technology and Therapeutics. 2015 Sep 1; 17(9): 667–671.
13. Ezzati M, Hoorn SV, Rodgers A, Lopez AD, Mathers CD, Murray CJ, et al. Estimates of global and regional potential health gains from reducing multiple major risk factors. Lancet. 2003;362:271–80.
14. Gunnell D. Can adult anthropometry be used as a 'biomarker' for prenatal and childhood exposures? Int J Epidemiol. 2002;31:390–4
15. Murray CJ, Lopez AD. Global mortality, disability, and the contribution of risk factors: Global Burden of Disease Study. Lancet. 1997;349:1436–42.
16. Reddy KS. India wakes up to the threat of cardiovascular diseases. J Am Coll Cardiol.;2007, 50; 1370-72.
17. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: Analysis of worldwide data. Lancet. 2005;365:217–23
18. Lawes CM, Vander Hoorn S, Rodgers A. International Society of Hypertension. Global burden of blood-pressure-related disease, 2001. Lancet. 2008;371:1513–8.
19. Kristensen TS. Cardiovascular diseases and the work environment. A critical review of the epidemiologic literature on nonchemical factors. Scand J Work Environ Health. 1989;15:165–79.
20. Gupta R. Burden of coronary heart disease in India. Indian Heart J. 2005;57:632–8.
21. Belkic K. Hanley and Belfus. 1 edition. Pennsylvania: United States; 2000. The forebrain: Central stress mechanisms and cardiovascular responses.2000
22. Belkiæ K, Schnall P, Landsbergis P, Baker D. The workplace and cardiovascular health: Conclusions and thoughts for a future agenda. Occup Med. 2000;15:307.
23. Belkić K, Savić Č, Theorell T, Cizinsky S. Work stressors and cardiovascular risk: assessment for clinical practice. Stockholm: Section for Stress Research (Karolinska Institute), World Health Organization Psychosocial Center. 1995:256.
24. Burke GL, Bertoni AG, Shea S, Tracy R, Watson KE, Blumenthal RS, Chung H, Carnethon MR. The impact of obesity on cardiovasculardisease risk factors and subclinical vascular disease: the Multi-Ethnic Study of Atherosclerosis. Archives of Internal Medicine. 2008;168:928–935.
25. Groppelli A, Giorgi DMA, Omboni S. Persistent blood pressure increase induced by heavy smoking. J hypertension 1992; 10:495-499.
26. Verdecchia P, Borgioni C, Porcellati C. Cigarette smoking, ambulatory blood pressure and cardiac hypertrophy in essential hypertension. J Hypertens October 1995;13(10):1209-1215.
27. OmvikP.Smoking affects blood pressure.Pub-Med.1996;5(2):71-7
28. 28.World J Cardiol.Alcohol-induced hypertension: Mechanism and prevention 2014 May 26; 6(5): 245–252.
29. Kulkarni, S., O'farrell, I., Erasi, M., &Kochar, M. S. (1998). Stress and hypertension. WMJ: official publication of the State Medical Society of Wisconsin, 97(11), 34-38
30. Schlereth T, Birklein F. The sympathetic nervous system and pain. Neuromolecular Medicine. 2008;10(3):141-7.
31. Kiveloff, B. and Huber.: Brief isometric exercise in hypertension. American Geratrics Society.1971; 1:1006.

How to cite this article: Bajaria S, Pandit U. The prevalence of hypertension and task analysis of corporates working in multinational companies under the age of 40 years. Int J Health Sci Res. 2018; 8(10):124-130.

******