Original Research Article

A study of the application of rule of halves as an assessment tool for hypertension among government employees working at Government Medical College, Latur

Prashant N Bade[1*], Varsharani V Kendre[2]

[1]Assistant Professor, Department of Community Medicine, SRTRGMC, Ambajogai, Maharashtra, INDIA.
[2]Assistant Professor, Department of Community Medicine, Government Medical College, Latur, Maharashtra, INDIA.
Email: badepn@gmail.com

Abstract

Background: The 'rule of halves' for hypertension states that: 'half the people with high blood pressure are not known ("rule 1"), half of those known are not treated ("rule 2") and half of those treated are not controlled ("rule 3")' **Aim:** To evaluate the applicability of 'rule of halves' as an assessment tool for detecting the status of awareness, management and control measures for hypertension in the community. **Methodology:** A cross-sectional observational study was conducted among adults aged 20 years and above working at Government Medical College, Latur. A non probability Convenience sampling was used and all employees fulfilling inclusion criteria were considered in the study. Using a structured questionnaire, the basic information and history regarding diagnosis and treatment of hypertension was collected. Blood pressure, height and weight were recorded. **Result:** The overall prevalence of hypertension in this population was 20.43% (142/695). Of these 142 employees with hypertension, only 83 (58.45%) were known Hypertensive's. Of the 83 known hypertensives, subjects (68.5%) were under any kind of antihypertensive therapy. Of these 87 individuals, only 21 (24.1%) had blood pressure under control. **Conclusion:** The 'rule of halves' when used as an assessment tool for hypertension showed that the studied population had poor awareness; comparatively better treatment and adequate control of Hypertension. It pointed out that Awareness was the area which needed improvement regarding hypertension.
Key Words: Hypertension, Rule of Halves, Employees.

[*]**Address for Correspondence:**
Dr. Prashant N. Bade, Assistant Professor, Department of Community Medicine, SRTRGMC, Ambajogai, Maharashtra, INDIA.
Email: badepn@gmail.com
Received Date: 19/07/2017 Revised Date: 28/08/2017 Accepted Date: 12/09/2017
DOI: https://doi.org/10.26611/100495

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 16 September 2017

INTRODUCTION

Hypertension (HTN) is an important public health problem in both economically developed and developing nations[1] Hypertension is becoming a public health emergency worldwide, especially in developing countries where studies projected an increase by 80% in the number of hypertensives by the year 2025.[2] Hypertension is the commonest cardiovascular disorder affecting about 20% adult populations worldwide. It is an important risk factor for cardiovascular mortality.[3] HTN is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India.[4] "High blood pressure", the theme of World Health Day 2013, is an apparent warning by the World Health Organization towards the global public health issue;' hypertension.'[5] The 'rule of halves' for hypertension states that: 'half the people with high blood pressure are not known ("rule 1"), half of those known are not treated ("rule 2") and half of those treated are not controlled ("rule 3")'.[6] The aim of the present study was to evaluate the applicability of 'rule of halves' as an assessment tool for detecting the status of awareness, management and control measures for

How to cite this article: Prashant N Bade, Varsharani V Kendre. A study of the application of rule of halves as an assessment tool for hypertension among government employees working at Government Medical College, Latur. *MedPulse – International Medical Journal.* September 2017; 4(9): 929-931. http://www.medpulse.in

hypertension among Government Employees working at a Government Medical College. Such evaluation would aid in generating a clear picture of magnitude of the disease (Hypertension) in terms of detection and control, thereby help to plan strategies for improving health care towards tackling this global public health issue.

MATERIAL AND METHODS

Study Design: A Cross-Sectional Observational Study.
Study Duration: From February 2013 to July 2014
Study Population: All Government employees above 20 years of age, working at Government Medical College, Latur

Inclusion Criteria

1. Employees with age 20 years and above.
2. Employees willing to participate in the study.

Exclusion Criteria

1. Pregnant women and lactating women up to 12 weeks.
2. Employees not willing to participate in the study

Study Sample: As Non probability convenience sampling method was used for the present study, no procedure for sample size estimation was applied. All Government employees working at Government medical college who satisfied inclusion criteria were selected as the study population. There were 698 employees working at our place of study. After exclusion of 3 employees who did not satisfy inclusion criteria, a total of 695 employees were taken as study population.

Methodology: Approval from Institutional Ethical Committee was obtained beforehand.

Methods of Data Collection: Predesigned and pretested questionnaire was used to record the necessary Information. Blood pressure was recorded in the sitting position in the right arm to the nearest 2 mm Hg with a mercury sphygmomanometer. Three readings were taken 5 minutes apart and the mean of the two was taken as the blood pressure. The first and the fifth Korotkoff's sounds were used to define systolic blood pressure (SBP) and diastolic blood pressure (DBP), respectively. Variation in blood pressure (BP) measurements was minimized by (a) ensuring 10 minutes rest before BP recording, (b)using standard cuffs for adults fitted with standard mercury sphygmomanometer, (c) placing the stethoscope bell lightly over the pulsatile brachial artery and (d) the same observer recording the blood pressure. Hypertension was defined according to 7th report of "Joint National Committee (JNC VII) for detection and evaluation of BP."Accordingly, any individual who had systolic blood pressure (SBP) of 140 mmHg or greater and/or diastolic blood pressure (DBP) of 90 mmHg or greater or was a known hypertensive and taking antihypertensive medication was diagnosed as Hypertensive.[1]Controlled hypertension was defined as those who were on treatment and had a BP of < 140/90 mmHg. Data analysis was done using MS Excel, SPSS21

RESULTS

Table 1: The overall prevalence of hypertension in this population was 20.43%.

Sr. No.	Particulars	Total	Percentage
1	The Whole Community	695	100
2	Normotensive subjects	553	79.57
3	Hypertensive subjects	142	20.43
4	Undiagnosed Hypertension	59	41.55
5	Diagnosed Hypertension	83	58.45
6	Diagnosed but untreated	19	22.89
7	Diagnosed and treated	64	77.11
8	Inadequately Treated	06	09.38
9	Adequately Treated	58	90.62

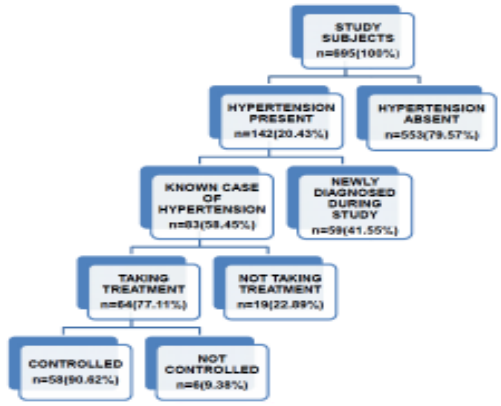

Figure 1:

Table 2:

	Rule1Undiagnosed)	Rule 2 (Not Treated)	Rule 3 (Not controlled)
Rule of Halves	50%	50%	50%
Study Population	41.55%	22.89	09.38
Inference	Poor awareness	Better Treatment	Adequate Control

DISCUSSION

The prevalence of hypertension in India is reported as ranging from 10 to 30.9 %.[8] The average prevalence of hypertension in India is 25% in urban and 10% in rural inhabitants.[9] The overall prevalence of hypertension in present study was found to be 20.43%, which lies in the above mentioned range. Hypertension was addressed as a "silent killer, global public health crisis" during World Health day 2013, by World Health Organization.[10] It would serve as a useful tool to deduce whether any community of interest followed the same trend or had marked deviations and thereby draw conclusions. "Rule 1" portrays the status of awareness regarding the disease

and the efficacy of prevailing screening programs in diagnosing the disease early. In our study, among the 142 individuals diagnosed as hypertensives as per JNC VII criteria, 59 (41.55%) were not aware of their hypertensive status [Flowchart 1]. Comparing with the normal trend of 50% undiagnosed cases as per the "rule of halves", the percentage of undiagnosed cases in this study was on lesser side. A study by Hameed *et al*[11] showed that 74.6% of hypertensives had diabetes in contrast to just 18.31% in our study. "Rule 2" depicts the status of treatment for hypertension among those diagnosed and the awareness aboutself-care in prevention of impending complications. In the present study, proportion of people i.e.77.11% opted to treat themselves was comparatively better. A study by Deepa *et al*[12] in Chennai, Tamil Nadu concluded that only 50% among the diagnosed hypertensives were on treatment which was in line with the "rule of halves"."Rule 3" addresses the status of adequacy in treatment for hypertension. In the present study, Among 64 treated hypertensives,58 (90.62%) were having a normal Blood Pressure indicating good overall status of control of blood pressure. among those treated hypertensive sproclaimed to have practiced salt restriction in their diet and regularly exercised in addition to antihypertensive therapy and all of them (100%) had their BP under normal limits.. Smith *et al*[13] detected in Scotland that 50% of those receiving any kind of treatment for hypertension were not having their BP under control which showed drastic difference fromour study (75.9%), indicating inadequate control of BP. Reliability on drugs alone and poor complianceto life-style modification can be a possible explanation, but various other factors interplaying to bring this picture of inadequate control need further exploration.

REFERENCES

1. P. M. Kearney, M. Whelton, K. Reynolds, P. K. Whelton, and J. He, "Worldwide prevalence of hypertension: a systematic review," Journal of Hypertension, vol. 22, no. 1, pp. 11–19, 2004.
2. Maroof KA, Parashar P, Bansal R, Ahmad S.A Study On Hypertension Among The Bank Employees Of Meerut District Of Uttar Pradesh.Indian J Public Health 2007;51(4):225-27.
3. Hypertension control. Technical Report Series: World Health Organization; 1996. Report No.: 862.
4. Gupta R. Trends in hypertension epidemiology in India. J Hum Hypertens 2004; 18:73–78
5. World Health Organization. A global brief on Hypertension- World Health Day 2013 Section I [online]. Available from URL: http://apps.who.int/iris/bitstream/10665/79059/1/WHO_DC O_WHD_2013.2_eng.pdf
6. Park K. Textbook of Preventive and Social Medicine. 23rd ed. Jabalpur: Bhanot publishers; 2015. p. 373.
7. Chobanian AV, BakR, Cushman WC, Green LA, Izzo JL Jr et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure.Hypertension. 2003; 42:1206.
8. Padmavati S. A meta-analysis-National Heart Institute, New Delhi.Ind Heart J 2002; 54:99-102
9. Gupta R. Trends in hypertension epidemiology in India. Journal of Human Hypertension 2004; 18:73–78
10. WHO | A global brief on hypertension [Internet].WHO. [citedaug 24 2017]. Available from: http://www.who.int/cardiovascular diseases/publications/global_brief_hypertension/en Hameed S, Chethana K, Brahmbhatt KR, Patil DC, Prasanna KS, Jayaram S. Prevalence of Hypertension and It's correlates in Elderly Population of Coastal Karnataka. Natl J Community Med 2014; 5(1): 25-28.
11. Deepa R, Shanthirani CS, Pradeepa R, Mohan V. Is the "rule of halves" in hypertension still valid? Evidence from the Chennai Urban Population Study. J Assoc Physicians India.2003; 51(2):153–7.
12. Smith WC, Lee AJ, Crombie IK, Tunstall-Pedoe H. Control of blood pressure in Scotland: the rule of halves. BMJ. 1990 Apr 14; 300(6730):981–3.
13. Smith WC, Lee AJ, Crombie IK, Tunstall-Pedoe H. Control of blood pressure in Scotland: the rule of halves. BMJ. 1990 Apr 14;300(6730):981–3.

Source of Support: None Declared
Conflict of Interest: None Declared