# A study of prevalence of hypertensive retinopathy at tertiary health care center 

Priyadarshini Cholera ${ }^{1}$, Manish Pendse ${ }^{2 *}$<br>$\left\{{ }^{1}\right.$ Associate Professor, Department of Ophthalmology\} \{²Associate Professor, Department of Medicine\} D Y Patil Medical College, Nerul, Navi Mumbai, Maharashtra, INDIA.<br>Email: drmanishpendse@gmail.com


#### Abstract

Background: nearly $26 \%$ of the adult population worldwide is affected by Hypertension. Kearney and colleagues estimated that the prevalence of hypertension in 2000 was $26 \%$ Aims and Objectives: To study prevalence of hypertensive retinopathy at tertiary health care center. Methodology: This was a cross sectional study carried out in the department of Ophthalmology during the one year period i.e. April 2018 to April 2019 so during the one year period those patients with diagnosed as Hypertensive and referred to Ophthalmology department for the routine retinal examination by taking the written and explained consent were included into the study. All details of the patients were noted and entered to excel sheet and analyzed by excel software for windows 10 . Results: In our study we have seen that the prevalence of retinopathy was common in the age group $>80$ were $83.33 \%$, followed by $70-80$ were $68.62 \%, 60-70$ were $65.3 \%, 50-60$ were $53.83 \%$, $40-50$ were $45.00 \%, 30-40$ were $25.00 \%$ and overall prevalence was $53.81 \%$. The majority of the patients were Male i.e. $73.23 \%$ and 26.77 were Female. By Keith Wagener classification the prevalence of Grade I retinopathy was $51.18 \%$, followed by Grade II was $27.55 \%$, Grade III was $22.83 \%$, Grade IV was 7.87 Conclusion: The hypertensive retinopathy is a very common problem specially in the males and old age hence these high risk patients should regularly screened for Hypertensive retinopathy and adequate measures should be taken to control BP and Hypertensive retinopathy.


Key words: hypertensive retinopathy, Keith Wagener classification

## *Address for Correspondence:

Dr Manish Pendse, Associate Professor, Department of Medicine, D Y Patil Medical College, Nerul, Navi Mumbai, Maharashtra, INDIA. Email: drmanishpendse@gmail.com
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## INTRODUCTION

nearly $26 \%$ of the adult population worldwide is affected by Hypertension. Kearney and colleagues estimated that the prevalence of hypertension in 2000 was $26 \%$ of the adult population globally and that in 2025 the prevalence would increase by $24 \%$ in developed countries and $80 \%$ in developing countries. ${ }^{1}$ Hypertensive retinopathy is a relatively common condition in ophthalmic practice as ophthalmoscopy of a hypertensive patient forms an
indispensable aid in its assessment, and prognostication but even with frequent detection of hypertensive retinopathy, its value vis a vis general systemic complication is seldom brought out. Hypertensive retinopathy is a spectrum of retinal signs related pathologically to retinal microvascular damage from elevated blood pressure. ${ }^{3}$ It is well documented that hypertensive retinopathy is associated with cardiovascular morbidity and mortality. ${ }^{4-6}$ Therefore, prevalence and spectrum of hypertensive retinopathy in the population reflects the status of hypertension control and the associated risks for cardiovascular events. In clinical management of hypertensive patients, hypertensive retinopathy can be used in cardiovascular risk assessment 6 and can be an indication for initiating anti-hypertensive therapy, even in persons with pre-hypertension or stage one hypertension ${ }^{7,8}$. So, in our study we have seen the prevalence of hypertensive retinopathy at tertiary health care center.

## METHODOLOGY

This was a cross sectional study carried out in the department of Ophthalmology during the one year period i.e. April 2018 to April 2019 so during the one year period those patients with diagnosed as Hypertensive and referred to Ophthalmology department for the routine retinal
examination by taking the written and explained consent were included into the study. The patients diagnosed as retinopathy by Senior Ophthalmic surgeon various classical features of Hypertensive retinopathy on the Ophthalmoscope and if the retinopathy was present then it was classified into Keith Wagener grades i.e. I to $\mathrm{IV}^{2}$

| Grade I | Slight or Modest Narrowing of the Retinal Arterioles, with an Arteriovenous Ratio of $\geq 1: 2$ |
| :--- | :---: |
| Grade II | Grade I + Modest to severe narrowing of retinal arterioles with an arteriovenous ratio $<1: 2$ or arteriovenous |
|  | nicking |
| Grade III | Grade II + Soft exudates or flame-shaped haemorrhages |
| Grade IV | Grade III + Bilateral optic disc nerve oedema |

All details of the patients were noted and entered to excel sheet and analyzed by excel software for windows 10.

RESULT
Table 1: Distribution of the patients as per the age

| Age | No. | Total referred <br> for Opthalm. | Percentage (\%) |
| :---: | :---: | :---: | :---: |
| $30-40$ | 12 | 48 | 25.00 |
| $40-50$ | 17 | 37 | 45.00 |
| $50-60$ | 21 | 39 | 53.83 |
| $60-70$ | 32 | 49 | 65.3 |
| $70-80$ | 35 | 51 | 68.62 |
| $>80$ | 10 | 12 | 83.33 |
| Overall | 127 | 236 | 53.81 |

The prevalence of retinopathy was common in the age group $>80$ were $83.33 \%$, followed by $70-80$ were $68.62 \%$, $60-70$ were $65.3 \%, 50-60$ were $53.83 \%, 40-50$ were $45.00 \%, 30-40$ were $25.00 \%$ and overall prevalence was $53.81 \%$.


Table 2: Distribution of the patients as per the sex

| Sex | No. | Percentage (\%) |
| :---: | :---: | :---: |
| Male | 93 | 73.23 |
| Female | 34 | 26.77 |
| Total | 127 | 100.00 |

The majority of the patients were Male i.e. $73.23 \%$ and 26.77 were Female.

Table 3: Distribution as per the grade of retinopathy

| Keith Wagener | No. | Percentage |
| :---: | :---: | :---: |
| Grade I | 65 | 51.18 |
| Grade II | 30 | 27.55 |
| Grade III | 22 | 22.83 |
| Grade IV | 10 | 7.87 |

By Keith Wagener classification the prevalence of Grade I retinopathy was $51.18 \%$, followed by Grade II was $27.55 \%$, Grade III was $22.83 \%$, Grade IV was 7.87 .

## DISCUSSION

Elevated blood pressure is the most important public health problem in developing and developed countries. It is common, asymptomatic, readily detectable, usually treatable, and often leads to lethal complications if left untreated. Hypertensive retinopathy is among the vascular complications of essential hypertension. It is known that the auto-regulation of retinal circulation fails as blood pressure increases beyond a critical limit. However, elevated blood pressure alone does not fully account for the extent of retinopathy. ${ }^{9}$ Systemic hypertension is one of the major causes of the global burden of disease. More than a hundred crore people have elevated blood pressure which results in an estimated ninety lakh deaths per year. ${ }^{10} \mathrm{ACC} / \mathrm{AHA}$ classified the people with BP of less than 120/80 as normal, systolic BP of 120 to 129 is defined as elevated blood pressure, systolic BP between 130 and 139 and diastolic BP between 80 and 89 is classified as stage- 1 and the values above are classified as stage$2 .{ }^{11}$ Target Organ damage involving cerebrovascular system, cardiovascular system, kidney and retina are the common complications of the poorly controlled blood pressure. ${ }^{3}$ Linear association between various stages of HTR and both clinical and subclinical cardiovascular and cerebrovascular mortality and morbidity has been widely studied. ${ }^{13}$ The incidence of hypertensive retinopathy increases in proportion with the duration and the severity of hypertension. ${ }^{14}$ In our study we have seen that The prevalence of retinopathy was common in the age group $>80$ were $83.33 \%$, followed by $70-80$ were $68.62 \%, 60-70$ were $65.3 \%, 50-60$ were $53.83 \%$, $40-50$ were $45.00 \%$, 3040 were $25.00 \%$ and overall prevalence was $53.81 \%$. The majority of the patients were Male i.e. $73.23 \%$ and 26.77 were Female. By Keith Wagener classification the prevalence of Grade I retinopathy was $51.18 \%$, followed
by Grade II was $27.55 \%$, Grade III was $22.83 \%$, Grade IV was 7.87. These findings are similar to Pun CB et al. ${ }^{15}$ they found the mean age of the patients was $60.58 \pm 12.26$ standard deviation. In our study $56.5 \%$ patients had hypertensive retinopathy. Of which $31 \%$ had grade I, 19\% had grade II, $6 \%$ had grade III and $0.5 \%$ had grade IV hypertensive retinopathy. The ratio of hypertensive retinopathy among male and female was 1.7:1.

## CONCLUSION

The hypertensive retinopathy is a very common problem specially in the males and old age hence these high-risk patients should regularly screen for Hypertensive retinopathy and adequate measures should be taken to control BP and Hypertensive retinopathy.

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