Journal of Cardiovascular Disease Research

ISSN: 0975-3583,0976-2833 VOL15, ISSUE 10, 2024

# A STUDY ON END ORGAN DAMAGE IN NEWLY DETECTED HYPERTENSIVE PATIENTS

**Dr B. Srinivasa Rao[1], Dr M. Sreevani[2], Dr Badaka Suresh[3], Dr Vattikonda Malleswari[4]**

[1]Professor, Department of General Medicine, Siddhartha Medical College, Vijayawada, India.
[2]Associate Professor, Department of Biochemistry, Siddhartha Medical College, Vijayawada, India.
[3]Post Graduate, Department of General Medicine, Siddhartha Medical College, Vijayawada, India.
[4]Post Graduate, Department of General Medicine, Siddhartha Medical College, Vijayawada, India.

Received Date: 19/09/2024 Acceptance Date: 07/10/2024

**Corresponding Author:** Dr Badaka Suresh, Post Graduate, Department of General Medicine, Siddhartha Medical College, Vijayawada, India.
**Email:** sureshbadaka@gmail.com

## ABSTRACT

**Background:** Hypertension is a dangerous medical condition that increases the risk of kidney failure, coronary heart disease, and stroke. Target organ damage assessment is a more reliable measure of cardiovascular risk in hypertensive individuals. In terms of the prognosis, it is also highly significant. Patients with recently discovered hypertension may have signs of target organ damage at the time of diagnosis. On the basis of that, the course of the disease's consequences can be anticipated and it aids in the early therapy of end organ damage targets. **Methodology:** A cross-sectional study was conducted from June 2022 to June 2023 at Government General Hospital, Vijayawada, to determine the prevalence of target end organ damage in 200 newly diagnosed hypertension patients undergoing NCD OPD. **Results:** The study's sample consisted of 52% women and 48% men. In this study, 15% of patients were less than 40 years old, while 85% of patients were older than 40. Two thirds were older than sixty as compared to younger age groups, the elderly had higher systolic blood pressure. When they were diagnosed, 74% of the study participants had stage 2 SBP, meaning their blood pressure was greater than 140 mmHg. With BP ≥90 mmHg, 96% of patients had DBP in stage 2. Out of the 41 individuals, 21% had hypertensive retinopathy; 26 of them had grade 1 retinopathy and 15 had grade 2 retinopathy. No patient exhibited grade 3 or grade 4 retinopathy. In hypertensives with recent detection, 11% had albuminuria, 91% had 1+ proteinuria, and 9% had 2+ proteinuria. There was a statistically significant increase in the prevalence of albuminuria in patients with stage 2 hypertension. Also, the mean systolic blood pressure influences the amount of albuminuria. Strong and independent predictor of the risk of both cardiovascular and renal disease is systolic blood pressure. **Conclusion:** The silent killer, hypertension, is becoming more common in the modern day. It is now the most frequent cause of cardiovascular events that raises the risk of morbidity and death. According to this study, there is a greater risk of end organ damage present when blood pressure is higher at the time of diagnosis. This emphasizes how crucial it is to check for end organ damage at the time of

ISSN: 0975-3583,0976-2833 VOL15, ISSUE 10, 2024

the disease's diagnosis. By doing this, the risk of morbidity and death is decreased, and complications are avoided.

## INTRODUCTION

Hypertension is a dangerous medical condition that increases the risk of kidney failure, coronary heart disease, and stroke.

Target organ damage assessment is a more reliable measure of cardiovascular risk in hypertensive individuals.

In terms of the prognosis, it is also highly significant. Hypertension is a highly frequent condition among the general population.

Target end organ damage can be stopped in its tracks and reversed with proper hypertension management.

Patients with recently discovered hypertension may have signs of target organ damage at the time of diagnosis.

On the basis of that, the course of the disease's consequences can be anticipated. Additionally, it aids in the early therapy of end organ damage targets.

## AIMS AND OBJECTIVES

To determine how common target end organ damage is in people with recently discovered hypertension.

To evaluate, in light of target organ damage, the degree of hypertension at the time of diagnosis.

To evaluate the relationship between target organ damage and sbp.

## METHODOLOGY

A cross-sectional study was conducted from June 2022 to June 2023 at Government General Hospital, Vijayawada, to determine the prevalence of target end organ damage in 200 newly diagnosed hypertension patients undergoing NCD OPD.

## INCLUSION CRITERIA

Patients in the age group of 30 to 65 years attending NCD OPD newly detected as hypertensive patients.

## EXCLUSION CRITERIA

Patients with known hypertension.

Age range: less than 30 to more than 65.

Individuals having a prior medical history of peripheral arterial occlusive illness, cerebrovascular accident, diabetes mellitus, visual abnormalities, or renal failure Software called SPSS version 21.0 was used to evaluate the collected data. Frequencies and percentages were used to express the results.

## RESULTS

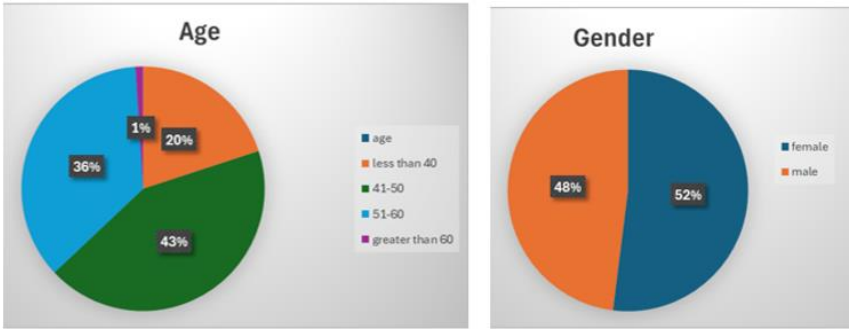


**Figure 1**

ISSN: 0975-3583,0976-2833 VOL15, ISSUE 10, 2024

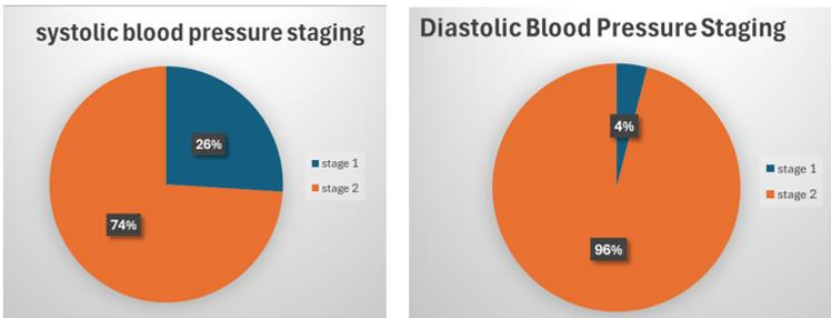


**Figure 2**

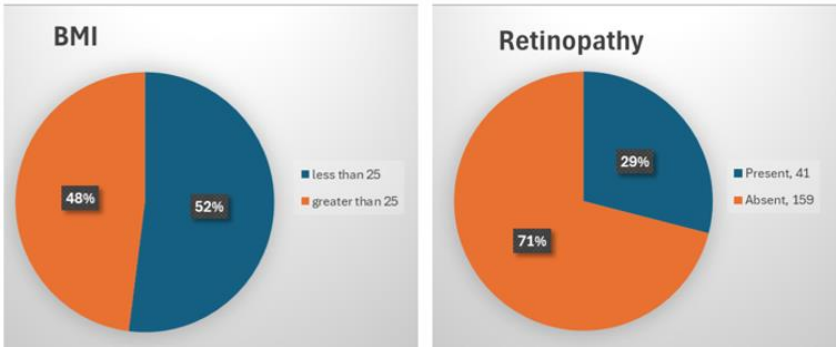


**Figure 3**

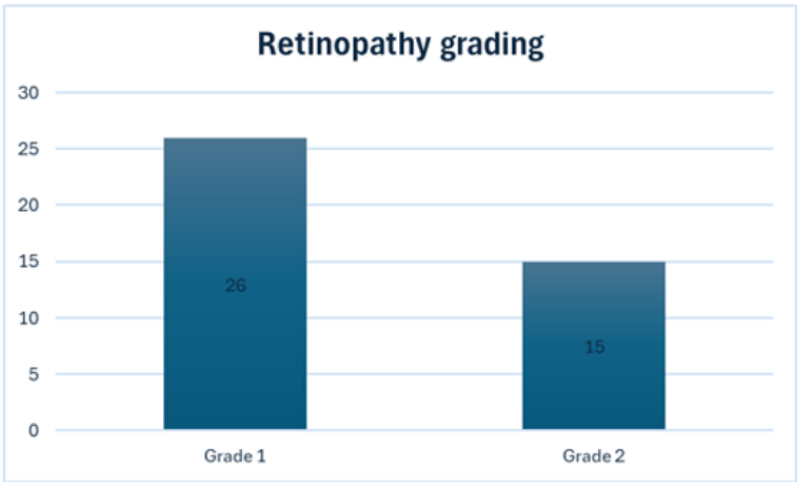


**Figure 4**

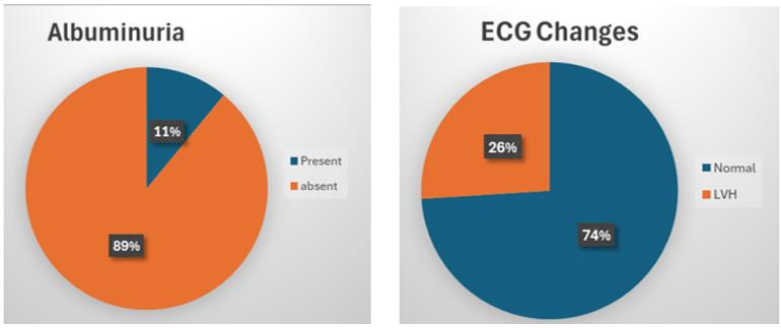


**Figure 5**

ISSN: 0975-3583,0976-2833 VOL15, ISSUE 10, 2024

**Table 1**

| Number of END Organ Damage | Number of Patients | Percentage |
|---|---|---|
| 0 | 121 | 60.5% |
| 1 | 49 | 24.5% |
| 2 | 22 | 11% |
| 3 | 8 | 4% |

**Table 2**

| Founds | LVH | Number of Patients | Percentage |
|---|---|---|---|
| Garde 1 HR | Present | 12 | 6% |
| Garde 2 HR | Present | 10 | 5% |
| Garde 1 HR | Absent | 14 | 7% |
| Garde 2 HR | Absent | 0 | 0 |

## DISCUSSION

In this study, 15% of patients were less than 40 years old, while 85% of patients were older than 40.

Two thirds were older than sixty as compared to younger age groups, the elderly had higher systolic blood pressure.

When they were diagnosed, 74% of the study participants had stage 2 SBP, meaning their blood pressure was greater than 140 mmHg.

With BP ≥90 mmHg, 96% of patients had DBP in stage 2.

The study's sample consisted of 52% women and 48% men.

There was no association between the BMI and the stage of hypertension in either the systolic or diastolic blood pressure readings, and 48% of these patients had a BMI of more than 25.

Urine albumin is used to check for renal dysfunction, ECG is used to search for LVH based on the Sokolov-Lyon index, and fundus examinations are used to assess end organ damage. Hypertensive retinopathy is one type of end organ damage.

Out of the 41 individuals, 21% had hypertensive retinopathy; 26 of them had grade 1 retinopathy and 15 had grade 2 retinopathy. No patient exhibited grade 3 or grade 4 retinopathy.

With a p value, there was a statistically significant link between the SBP stage and the existence of hypertensive retinopathy. A greater SBP is associated with a higher risk of hypertensive retinopathy, according to the Chi square test.

Additionally, there was a statistically significant relationship found between mean SBP and hypertensive retinopathy, with higher DBP associated with an increased risk of retinopathy.

Hypertensive retinopathy advances in tandem with the hypertension stage. Our research demonstrates a relationship between the systolic and diastolic blood pressure measured at the time of diagnosis and the existence of hypertensive retinopathy.

There is a markedly increased risk of cardiovascular and renal illness that manifests clinically as hypertension advances in stage.

In hypertensives with recent detection, 11% had albuminuria, 91% had 1+ proteinuria, and 9% had 2+ proteinuria. There was a statistically significant increase in the prevalence of albuminuria in patients with stage 2 hypertension. Also, the mean systolic blood pressure influences the amount of albuminuria.

ISSN: 0975-3583,0976-2833 VOL15, ISSUE 10, 2024

Albuminuria is higher when mean SBP is higher.
More than 1.0 mg% of serum creatinine is present in 26% of the individuals
However, there was no relationship between serum creatinine levels and the stage of hypertension. Moreover, there is no meaningful association with serum creatinine levels.
There is also no discernible relationship between serum creatinine and mean SBP, DBP, or both. By the Sokolov Lyon index, 27% had ECG abnormalities indicative of LVH.
The ECG and the stage of hypertension with SBP, DBP, and mean SBP and DBP showed a substantial association.
Strong and independent predictor of the risk of both cardiovascular and renal disease is systolic blood pressure.
Sixty-one patients (60.5%) had no organ damage, while 79 patients (24.5%) had at least one end organ impairment.
Out of the three patients screened for, 11% had signs of two end organ damage. Furthermore, 8% of patients had hypertensive heart disease, nephropathy, and retinopathy, which are all end organ damage.

## SUMMARY

According to this study, the prevalence of end organ damage and the level of blood pressure at the time of diagnosis are significantly correlated.
There is a greater chance of end organ damage present at the time of diagnosis if blood pressure is higher.
This study found a relationship between the presence of hypertensive heart disease and retinopathy at the time of diagnosis and blood pressure.
These individuals are more likely to experience further hypertension-related problems, which raises their risk of cardiovascular death.

## CONCLUSION

- The silent killer, hypertension, is becoming more common in the modern day. It is now the most frequent cause of cardiovascular events that raises the risk of morbidity and death.
- According to this study, there is a greater risk of end organ damage present when blood pressure is higher at the time of diagnosis.
- This emphasizes how crucial it is to check for end organ damage at the time of the disease's diagnosis.
- By doing this, the risk of morbidity and death is decreased, and complications are avoided.

## REFERENCES


- SHIRAFKAN A *ET AL.*. ASSOCIATION BETWEEN LEFT VENTRICULAR HYPERTROPHY WITH RETINOPATHY AND RENAL DYSFUNCTION IN PATIENTS WITH ESSENTIAL HYPERTENSION. SINGAPORE MED J 2009;50(1):1177
- MEENAKSHISUNDARAM R, BABUVINISH D, GROOTVELD M, RAJENDIRANC, THIRUMALAIKOLUNDUSUBRAMANIANP.STATUS OF END ORGANS IN NEWLY DETECTED 93 RURAL ESSENTIAL HYPERTENSIVES: A STUDY FROM SOUTHERN INDIA. CLINEXP HYPERTENS.2012;34(3):201-8.

ISSN: 0975-3583,0976-2833 VOL15, ISSUE 10, 2024


- GUPTA R. TRENDS IN HYPERTENSION EPIDEMIOLOGY IN INDIA. JOURNAL OF HUMAN HYPERTENSION.2004 FEB;18(2): 73–78
- ADDO J, SMEETHLLEON DA. HYPERTENSIVE TARGET ORGAN DAMAGE IN GHANAIAN CIVIL SERVANTS WITH HYPERTENSION. PLOS ONE. 2009; 4(8), 6672.
- ABDULRAHMAN IB, MOHAMMED JSM, KHAIR MM. PATTERN OF HYPERTENSIVE TARGET ORGAN DAMAGE IN KHARTOUM AND ELSHAAB HOSPITALS. KHARTOUM MEDICAL JOURNAL 2011; 4(1):584 - 9.


- ABDULRAHMAN IB, MOHAMMED JSM, KHAIR MM. PATTERN OF HYPERTENSIVE TARGET ORGAN DAMAGE IN KHARTOUM AND ELSHAAB HOSPITALS. KHARTOUM MEDICAL JOURNAL 2011; 4(1):584 - 9.