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# THE PROFILE OF HYPERTENSION IN YOUNG PEOPLE

General Medicine

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## ABSTRACT

**Background And Objectives:** Hypertension is a leading cause of Morbidity and mortality in India. Blood pressure progressively increases with increasing age. Hypertension that is age- related is predominantly systolic. It has been noted that systolic blood pressure rises into the 8th and 9th decades while the diastolic blood pressure remains constant or declines after 50 years of age In individuals over the age of 50, the systolic blood pressure is a better predictor of risk and in those below 50, it is the diastolic blood pressure that is a better predictor of mortality .Objective of the study is to study and profile patients with young onset hypertension who present to the General Medicine department of Narayana Medical College, Nellore. **Methodology:** A total of 100 patients with Systemic Hypertension visiting Narayana Medical College and Hospital OPD and in medical wards were included based on inclusion and exclusion criteria. Qualified patients undergone detailed examination and required investigations were done. **Results:** This study found the secondary causes of hypertension in the age group of 16 – 40 years to be 56% and 44% are primary hypertension. Renal Parenchymal disease is most common cause of secondary hypertension followed by other causes. The modifiable risk factors that were associated with hypertension showed significant decline in blood pressure. **Conclusion:** In this study, among Primary HTN subjects most common examination finding was Obesity in 22.7% and among subjects with secondary HTN, most common examination findings was Signs of Chronic Kidney Disease (17.9%) and followed by signs Cerebrovascular accident. There was significant association between Examination and Type of HTN

## KEYWORDS

Primary and secondary Hypertension, Renal Disease, Obesity, Risk factor

## INTRODUCTION

Systemic arterial hypertension is a most common and major medical health problem worldwide. On Chronicity it has its effect on end organs and multiple complications of atherosclerotic cardiovascular disease, Cerebrovascular accidents and other micro vascular complications. Hypertension runs with Ice berg phenomenon and this disease is a “silent killer disease”. Without appropriate control and evaluation it leads to major Cardiovascular , Cerebrovascular events or other organ system complications on chronicity. One in five young adults in India has high blood pressure, according to research presented at the 70th Annual Conference of the Cardiological Society of India (CSI). That equates to around 80 million people, which is more than the entire UK population.

The prevalence of hypertension increases with age but in recent times, due to multiple factors the incidence of hypertension is increasing in young population. The hypertension in elderly is mostly due to primary hypertension but the young hypertensives need evaluation for the cause of hypertension as the secondary hypertension indicates underlying disease process which needs to be treated.

Non communicable diseases (NCDs) kill 41 million people each year, equivalent to 71% of all deaths globally. Each year, more than 15 million people die from a NCD between the ages of 30 and 69 years; 85% of these "premature" deaths occur in low- and middle-income countries. 77% of all non communicable disease deaths are in low- and middle-income countries. Non communicable diseases disproportionately affect people in low- and middle income countries where more than three quarters of global NCD deaths 31.4 million occur. Cardiovascular diseases account for most NCD deaths, or 17.9 million people annually, followed by cancers (9.3 million), respiratory diseases (4.1 million), and diabetes (1.5 million).The effect of these diseases is felt across ages with 1 in 4 deaths due to non communicable diseases occurring in those below the age of 60 Across the world, cardiovascular diseases account for close to 17 million deaths a year, which is nearly a third of all deaths.

## AIMS AND OBJECTIVES:

To study and profile patients with young onset hypertension who present to the General Medicine department of Narayana Medical college and hospital, Nellore. Objective is to determine the various etiologies of secondary hypertension among young hypertensive presenting to Department of General Medicine and to identify the modifiable risk factors Primary hypertension in young Hypertensive patients.

## METHODOLOGY:

This is a prospective observational a sample size of 100 patients visiting OPD and in the wards of department of medicine in Narayana medical college and hospital ,Nellore with duration of study 18 months.

### Inclusion Criteria

1. Patients presenting with hypertension between 16 to 40 years of age
2. The cut off for hypertension as per JNC 8 guidelines is taken as a SBP ≥130 mmHg or DBP ≥ 80 mmHg. This is to be the average of 2 readings.
3. Patients may already have been evaluated for secondary hypertension or may be undergoing evaluation

### Exclusion Criteria

1. Pregnant women
2. Subjects unwilling to give consent.
3. Hypertensive patients with age >40 years of age
4. White coat hypertension

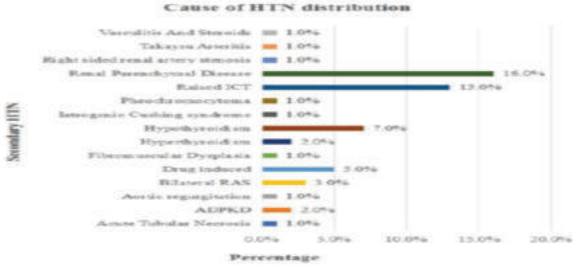
### Statistical Analysis

All the collected data were statistically analyzed using appropriate statistical test. P value less than 0.05 were considered significant.

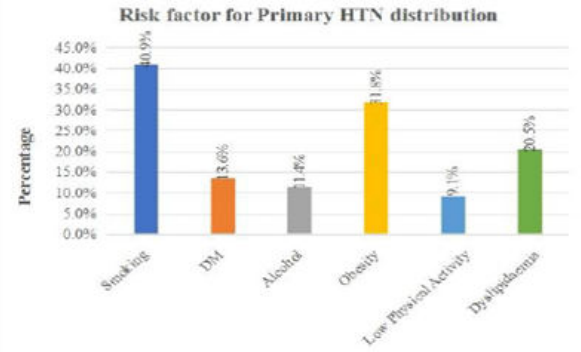
## OBSERVATIONS AND RESULTS

**Cause of HTN distribution**

**Primary Hypertension Seen in 44%**



**Risk Factor For Primary HTN Distribution**




**Clinical Presentation Comparison Between Primary And Secondary HTN**

| | | Type of HTN | | | |
|---|---|---|---|---|---|
| | | Primary HTN | | Secondary HTN | |
| | | Count | % | Count | % |
| History | Abdominal Swelling (Non specific for HTN) | 0 | 0.0% | 1 | 1.8% |
| | Anxiety, Palpitations | 0 | 0.0% | 2 | 3.6% |
| | Asymptomatic | 17 | 38.6% | 9 | 16.1% |
| | Asymptomatic, History of Using Steroids | 0 | 0.0% | 1 | 1.8% |
| | Asymptomatic, History of Using OCP | 0 | 0.0% | 1 | 1.8% |
| | Ataxia, Vomiting | 0 | 0.0% | 6 | 10.7% |
| | Bleeding PV, History of Using OCP | 0 | 0.0% | 1 | 1.8% |
| | Breathlessness | 0 | 0.0% | 1 | 1.8% |
| | Cough and Wheeze | 0 | 0.0% | 1 | 1.8% |
| | Epistaxis | 10 | 22.7% | 0 | 0.0% |
| | Fever, Cough (non specific for HTN) | 0 | 0.0% | 1 | 1.8% |
| | Giddiness and Headache | 2 | 4.6% | 8 | 14.3% |
| | Headache | 6 | 13.6% | 0 | 0.0% |
| | History of Using Anti-Depressants | 0 | 0.0% | 1 | 1.8% |
| | History of Using Antidepressants | 0 | 0.0% | 1 | 1.8% |
| | History of Using Steroids | 1 | 2.3% | 0 | 0.0% |
| | Malena (non specific for HTN) | 2 | 4.5% | 0 | 0.0% |
| | Oliguria and Haematuria | 0 | 0.0% | 3 | 5.4% |
| | Oliguria, Pedal Edema | 1 | 2.3% | 7 | 12.5% |
| | Pain Abdomen ( non specific for HTN) | 3 | 6.8% | 2 | 3.6% |
| | Palpitations and Breathlessness | 0 | 0.0% | 1 | 1.8% |
| | Pedal Edema | 1 | 2.3% | 0 | 0.0% |
| | Pedal Edema, Facial Puffiness | 0 | 0.0% | 1 | 1.8% |
| | Rash( non specific for HTN) | 1 | 2.3% | 0 | 0.0% |
| | Sudden Loss of Consciousness | 0 | 0.0% | 1 | 1.8% |
| | Symptoms of Stroke | 0 | 0.0% | 6 | 10.7% |
| | Weakness of All Four Limbs | 0 | 0.0% | 1 | 1.8% |

$\chi 2 = 64.31$, df =29, $p < 0.001$*

Majority of subjects with Primary HTN were asymptomatic at presentation. Most common complaint among them was Epistaxis (22.7%). Among subjects with secondary HTN, most common complaint was Giddiness and Headache (14.3%). There was significant association between clinical presentation and type of HTN

**Examination Comparison Between Primary And Secondary HTN**

| | | Type of HTN | | | |
|---|---|---|---|---|---|
| | | Primary HTN | | Secondary HTN | |
| | | Count | % | Count | % |
| Examination | Abdominal Distention | 4 | 9.1% | 1 | 1.8% |
| | Abdominal Distention, Jaundice | 1 | 2.3% | 0 | 0.0% |
| | Hemiparesis | 0 | 0.0% | 6 | 10.7% |
| | Left Hyposthesias | 0 | 0.0% | 1 | 1.8% |
| | Malar Rash, Petechiae | 1 | 2.3% | 1 | 1.8% |
| | NAD | 22 | 50.0% | 23 | 41.1% |
| | Nystagmus+ , Obese | 1 | 2.3% | 0 | 0.0% |
| | Obese | 10 | 22.7% | 0 | 0.0% |
| | Papilledema, Obese | 1 | 2.3% | 0 | 0.0% |
| | Pedal Edema, Xanthelasma | 1 | 2.3% | 0 | 0.0% |
| | Pitting Edema | 0 | 0.0% | 1 | 1.8% |
| | Pulseless on Right Radial, Brachial, Feeble on Left Side | 0 | 0.0% | 1 | 1.8% |
| | Sensory Deficits | 0 | 0 % | 1 | 1.8% |
| | Signs of Meningitis | 0 | 0.0% | 1 | 1.8% |
| | Signs of Posterior Circulation Stroke | 0 | 0.0% | 1 | 1.8% |
| | Signs of Chronic Kidney Disease | 1 | 2.3% | 10 | 17.9% |
| | Signs of Cushing Syndrome | 0 | 0.0% | 1 | 1.8% |
| | Signs of Hyperthyroidism | 0 | 0.0% | 2 | 3.6% |
| | Signs of Pheochromocytoma | 0 | 0.0% | 1 | 1.8% |
| | Signs of Posterior Circulation Stroke | 0 | 0.0% | 4 | 7.1% |
| | Signs of Severe Aortic Regurgitation | 0 | 0.0% | 1 | 1.8% |
| | Volume Overload State | 0 | 0.0% | 1 | 1.8% |
| | Xanthelasmas | 1 | 2.3% | 0 | 0.0% |

$\chi 2 = 45.4$, df =22, $p = 0.002$*

In the study among subjects with Primary HTN, most common examination findings was Obesity in 22.7% and among subjects with secondary HTN, most common examination findings was Signs of Chronic Kidney Disease (17.9%). There was significant association between Examination and Type of HTN.

## DISCUSSION

In this study we have observed that renal parenchymal disease is the major contributor of secondary hypertension followed by acute raised ICT.

- Renal parenchymal diseases include, all the glomerular (IgA nephropathy, PSGN and others) and interstitial nephropathy cases
- The acute raised ICT cases include cases of cerebrovascular accidents (Ischemic and hemorrhagic strokes) most of the cases we have seen are post COVID status.
- We have observed 3 patients with bilateral renal artery stenosis , 2 patients with ADPKD ,1 patient with ATN and 1 patient with unilateral RAS & FMD each.
- There are cases with drug induced hypertension like iatrogenic Cushing's other drugs like OCPs, Anti psychotic medications and anti-epileptic drugs.

## CONCLUSION

1. This study found the secondary causes of hypertension in the age group of 16 – 40 years to be 56% and 44% are primary hypertension.
2. Renal Parenchymal disease is most common cause of secondary hypertension followed by acute raise in ICT, Renovascular causes of hypertension and other endocrine causes.
3. The modifiable risk factors that were associated with hypertension were Obesity, smoking, low physical activity and added dietary salt.
4. In this study, among Primary HTN subjects most common

examination finding was Obesity in 22.7% and among subjects with secondary HTN, most common examination findings was Signs of Chronic Kidney Disease (17.9%) and followed by signs Cerebrovascular accident. There was significant association between Examination and Type of HTN.

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