

Clinical profile of young hypertensives.

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Abstract:

Aim:

- To study the clinical patterns of young hypertensive (15 to 40 yrs).
- Any special clinical profile of young hypertensive.
- Value of several laboratory investigative procedures in the diagnosis of hypertension.
- Arriving at etiological diagnosis in young hypertensive

Methodology:

(1) Study subjects

Patients in the age group of 15-40 years diagnosed to have hypertension, when blood pressure exceeded 140/90 mmHg, as per the criteria laid by JNC VII.

(2) Exclusion criteria

- 1 Hypertensive <15yrs and >40yrs.
- 2 Pregnancy induced hypertension
- 3 Drug induced hypertension

(3) Sample size and design - 50 patients in the age group of 15-40 yrs admitted in Medicine Department, MGM hospital are taken, and they are evaluated for the cause of hypertension by thorough clinical examination, routine laboratory tests and special investigations

Results:

Conclusion:

- In young hypertensive the secondary causes are commonly found. Renal, endocrinal constitute most of the causes.
- In majority of the cases secondary hypertension can be diagnosed by history, physical examination, simple tests of blood, urine and ultrasound abdomen. The special investigations, were done, based on these parameters.
- If the underlying cause is corrected most of the secondary forms of hypertension are curable.
- Reinforcement of dietary measures and regular antihypertensive in the essential group is the treatment of choice.

Keywords: Young, Hypertensive, Secondary Hypertension,

I. Introduction

Hypertension is one of the most common disease afflicting humans throughout the world. Because of the associated morbidity and mortality and the cost to society, hypertension is an important public health challenge. Over the past several decades, extensive research, widespread patient education, and a concerted effort on the part of health care professionals have led to decreased mortality and morbidity rates from the multiple organ damage arising from years of untreated hypertension. Hypertension is the most important modifiable risk factor for coronary heart disease, stroke, congestive heart failure, end-stage renal disease, and peripheral vascular disease. Therefore, health care professionals must not only identify and treat patients with hypertension but also promote a healthy lifestyle and preventive strategies to decrease the prevalence of hypertension in the general population.

The study, diagnosis and treatment of hypertension in the young constitutes one of the major health challenges today because of the high percentage of potentially curable chance if the cause could be found. Indeed intensive study and investigations are required to unravel the underlying cause.

II. Aims And Objectives

- To study the clinical patterns of young hypertensive (15 to 40 yrs).
- Any special clinical profile of young hypertensive.
- Value of several laboratory investigative procedures in the diagnosis of hypertension.
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III. Methodology

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(3) **Sample size and design** - 50 patients in the age group of 15-40 yrs admitted in Medicine Department, MGM hospital are taken, and they are evaluated for the cause of hypertension by thorough clinical examination, routine laboratory tests and special investigations if needed.

The following investigations are done in all the cases

- Complete haemogram
- Blood urea, Serum creatinine
- FBS, PPBS
- Serum electrolytes (Na⁺, K⁺, Cl⁻) Ca⁺⁺, Po₄⁻³
- Urine Routine and microscopy
- 24 hr urinary protein.
- ECG
- Chest X-ray
- Ultrasound abdomen
- 2D Echocardiogram
- Further investigations are carried out if routine investigations and clinical examination indicated the need for these.

Renovascular disease: Angiotensin-converting enzyme inhibitor radionuclide renal scan, renal duplex Doppler flow studies, and MRI angiography

Phaeochromocytoma: 24-h urine assay for VMA, Metanephrines, and catecholamines

Cushing's syndrome: overnight dexamethasone suppression test or 24-h urine cortisol and creatinine

Primary aldosteronism: plasma aldosterone assay: renin activity ratio

Thyroid function tests (T₃, T₄, TSH)

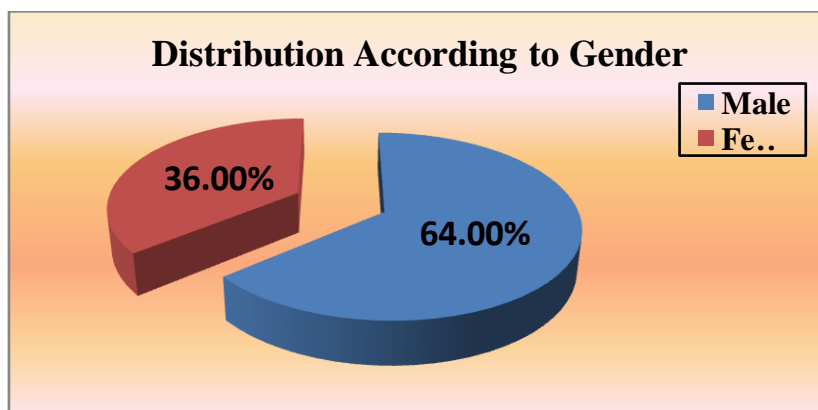
Growth hormone assay

IV. Results

Distribution According to Gender

Gender	Frequency	Percentage
Male	32	64.00%
Female	18	36.00%
Total	50	100.00%

Above table indicates distribution of sample according to gender. This study involves 32 (64%) males and 18 (36%) Females.



Distribution According to Age

Age (Years)	Frequency	Percentage
15-20	6	12.0%
21-25	5	10.0%
26-30	9	18.0%
31-35	17	34.0%
36-40	13	26.0%
Total	50	100.0%

Mean Age (Males)= 29.7813 Years, SD = 7.38 Years
 (Females)= 32.06 Years, SD = 4.94 Years

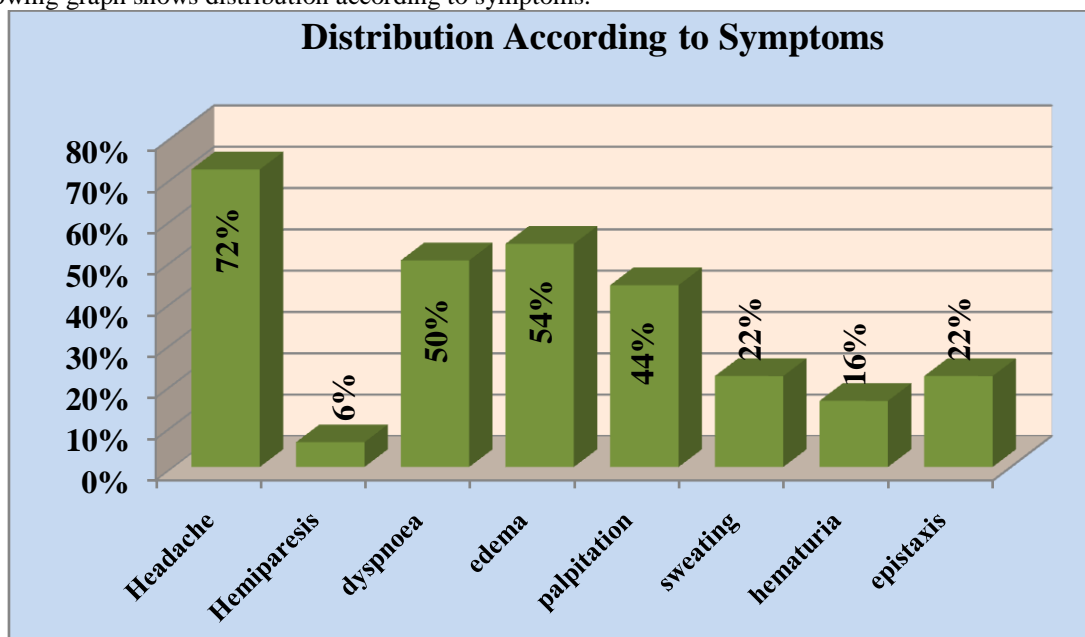
Mean Age

Above table shows distribution of study samples according to age. Maximum (n=17, 34%) number of patients were in the age group 31-35 years followed by 36-40 years (n=13, 26%). Six patients (12%) were in the age group 16-20 years, 5 (10%) were in the age group 21-25 years and 9 (18%) were in the age group 26-30 years. The mean age of males was 29.78 years (SD=7.38 years), the mean age of females was 32.06 years (SD = 4.94 Years). The following graph shows distribution of patients according to age.

Distribution According to Symptoms

Symptom	No. of Patients	Percentage
Headache	36	72.0%
Hematuria	8	16.0%
Edema	27	54.0%
Dyspnea	25	50.0%
Palpitation	22	44.0%
Sweating	11	22.0%
Hemiparesis	3	6.0%
Epistaxis	11	22.0%

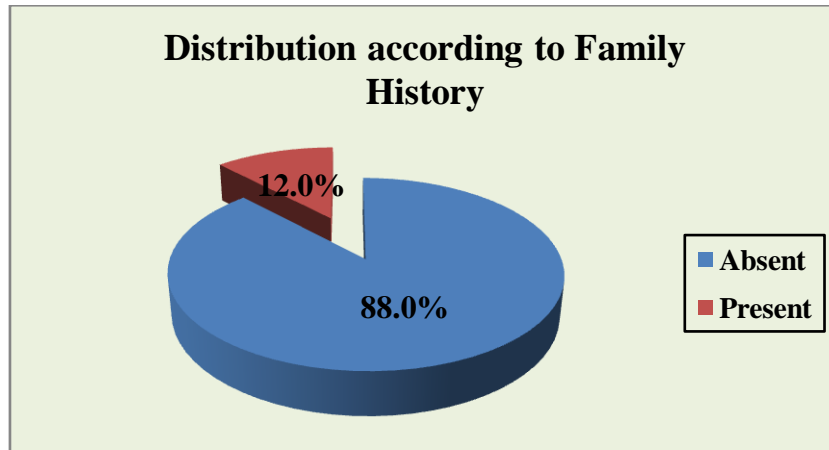
The above table shows distribution of patients according to symptoms. 72% (n=36) patients had headache, 6% (n=3) patients had Hemianopia, 25 (n=50%) patients had dyspnoea, 54% (n=27) had edema, 44% (n=22) had palpitation, 22% (n=11) had sweating, 16% (n=8) had hematuria and 22% (n=11) had epistaxis. Following graph shows distribution according to symptoms.



Distribution according to Family History

Family History	Frequency	Percentage
Absent	44	88.0%
Present	6	12.0%
Total	50	100.0%

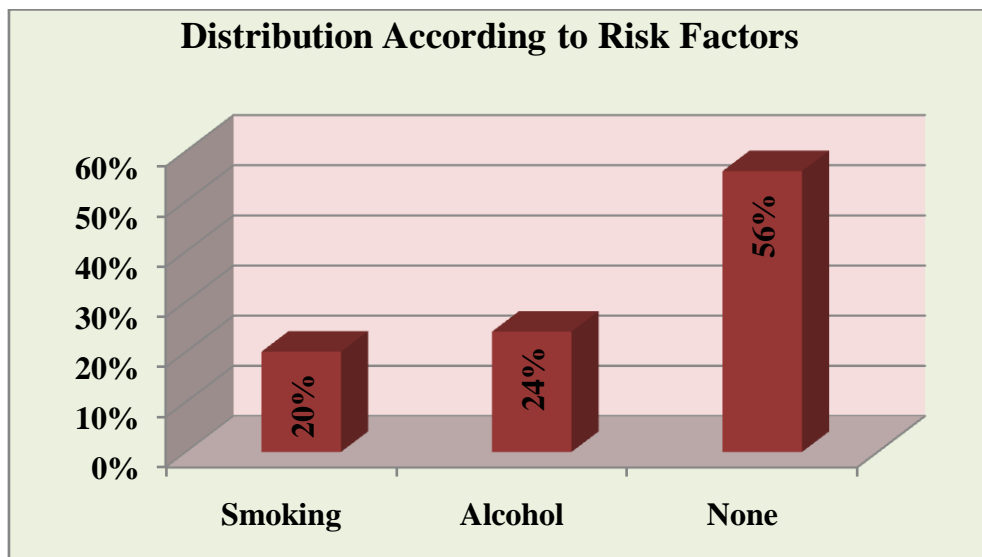
Above table shows distribution of patients according to family history. In 44 (88.0%) patients there was no family history where as in 6 (12.0%) patients family history was present. The results were also shown in graph below.



Distribution according to Risk Factor

Risk Factor	Frequency	Percentage
Smoking	10	20.0%
Alcohol	12	24.0%
None	28	56.0%
Total	50	100.0%

Table above shows distribution according to risk factors. Out of 50 patients, 10 (20.0%) were smokers, 12 (24.0%) were having alcohol as risk factor where as 28 (56.0%) were do not have any risk factor. The results were also shown in below graph.



Distribution according to Left Ventricular Failure

LVF	Frequency	Percentage
Absent	45	90.0%
Present	5	10.0%
Total	50	100.0%

The above table indicates distribution of patients according to LVF. In 45 (90.0%) patients, LVF was absent, where as in 5 (10.0%) patients, LVF was present.

Distribution according to FUNDUS

FUNDUS	Frequency	Percentage
Normal	34	68.0%
Grade1	1	2.0%
Grade2	7	14.0%
Grade3	6	12.0%
Grade4	2	4.0%
Total	50	100.0%

The above table shows distribution of patients according to FUNDUS. Out of 50 patients, 34 (78%) were normal, 1 (2%) were grade 1, 7 (14.0%) were grade 2, 6 (12.0%) were grade 3 and 2 (4.0%) were grade 4 FUNDUS.

Descriptive Statistics

	N	Min	Max	Mean	SD
Blood Urea	50	20.00	208.00	75.06	55.59
Serum creatinine	50	.30	14.00	2.69	3.01
24 urinary protein	50	0.00	5.00	1.58	1.29

The above table shows descriptive statistics for blood urea, serum creat and 24 urinary protein. The minimum value of blood urea was 20; maximum value of blood urea was 208. The mean blood urea was 75.06 with SD 55.59.

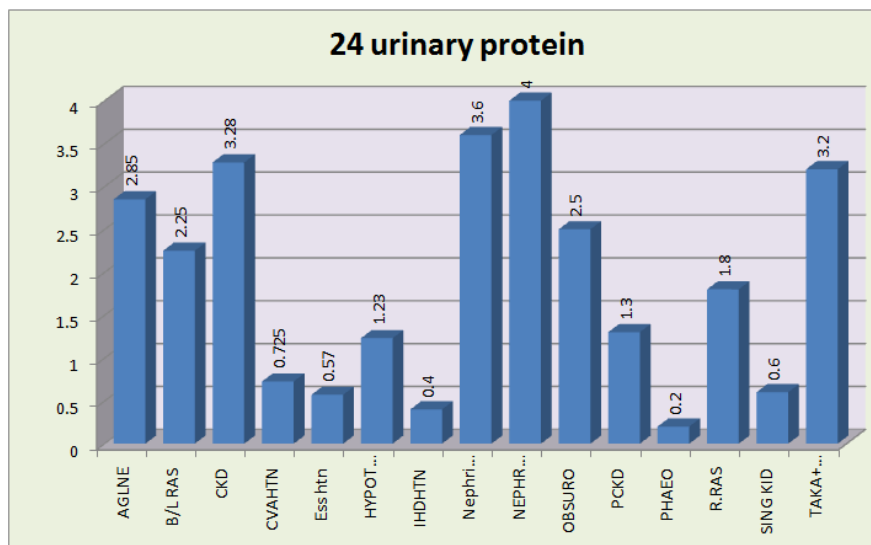
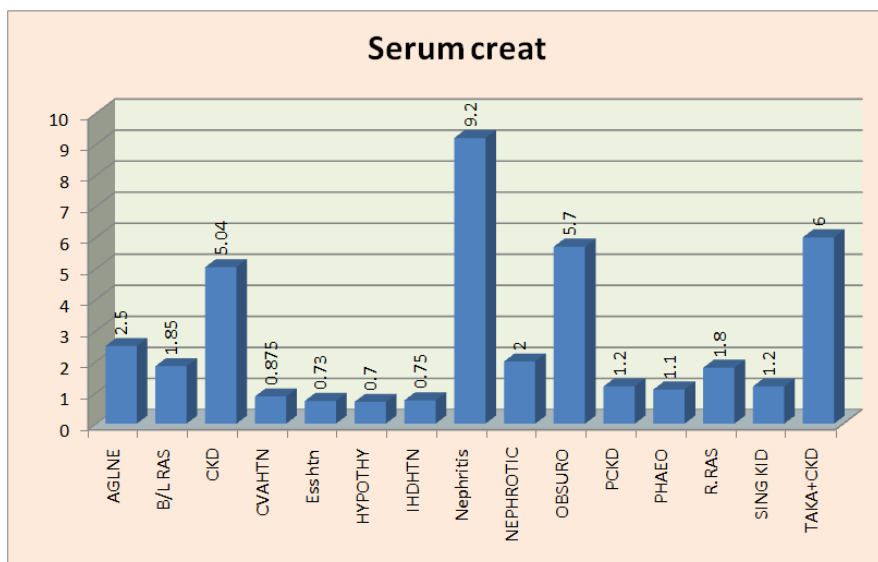
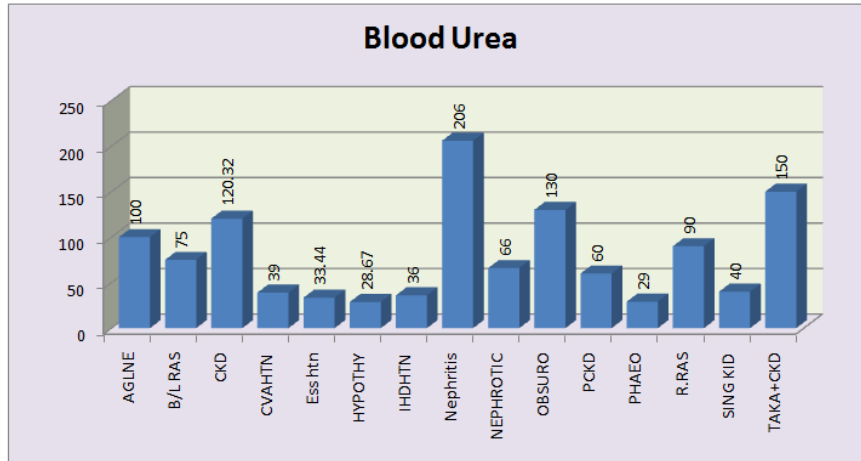
The minimum serum creat was 0.3; maximum value of serum creat was 14.00. The mean value of serum creat was 2.69 with SD 3.01.

The minimum 24 urinary protein was 0.00; maximum value of 24 urinary protein was 5. The mean value of 24 urinary protein was 1.58 with SD 1.29.

Descriptive Statistics

Etiological distribution of hypertension	Blood Urea	Serum creat	24 urinary protein
Acute Glomerulonephritis	100	2.5	2.85
B/L Renal Artery stenosis	75	1.85	2.25
Chronic Kidney Disease	120.32	5.04	3.28
Cerebrovascular Accident	39	0.875	0.725
Essential hypertension	33.44	0.73	0.57
Hypothyroidism	28.67	0.7	1.23
Ischemic heart disease	36	0.75	0.4
Nephritic	206	9.2	3.6
Nephrotic	66	2	4
Obstructive Uropathy	130	5.7	2.5
Polycystic kidney disease	60	1.2	1.3
Phaeochromocytoma	29	1.1	0.2
Single Renal artery stenosis	90	1.8	1.8
Single kidney	40	1.2	0.6
Takayasu arteritis	150	6	3.2

The above table indicates mean levels of blood urea, serum creat and 24 urinary protein according to etiological distribution of hypertension.



Electrocardiograph (ECG)

ECG	Frequency	Percent
BRADY	3	6.0%
IHD	2	4.0%
LVH	14	28.0%
NOR	31	62.0%
Total	50	100.0%

The above table shows distribution of patients according to electrocardiograph (ECG). Out of 50 patients, 3 (6.0%) were brady, 2 (4.0%) were IHD, 14 (28.0%) were LVH and 31 (62%) were normal.

2-D Echocardiogram

2-D Echo	Frequency	Percent
NOR	33	66.00%
A. Aneu	1	2.00%
IHD	2	4.00%
LVH	11	22.00%
PE	2	4.00%
TAKA	1	2.00%
Total	50	100.00%

The above table shows distribution of patients according to 2-D Echo. Out of 50 patients 33 (66.00%) were normal, 1 (2.0%) was A.Aneu, 2 (4%) were IHD, 11(22.0%) were LVH, 2 (4%) were PE and 1 (2%) were TAKA.

USG/REST

USG/REST	Frequency	Percent
NORMAL	26	52.0%
B/L RAS	1	2.0%
CAG	1	2.0%
dop-RRAS	1	2.0%
DOPBLRAS	1	2.0%
GR3 MRD	1	2.0%
HYPO R KID	1	2.0%
MRD	13	26.0%
OBSURO	2	4.0%
PCKD	1	2.0%
R-ADR MASS	1	2.0%
TSH 55	1	2.0%
Total	50	100.0%

The above table shows distribution of samples according to USG/REST. Out of 50 patients, 26 (52.000%) were normal, 13 (26% were MRD and 2 (4%) were OBSURO.

Diagnosis

Diagnosis	Frequency	Percent
AGLNE	3	6.00%
CKD	12	26.00%
CVA+HTN	3	6.00%
ESS HTN	16	32.00%
HYPOTHY	3	6.00%
IHD+HTN	2	4.00%
Nephritis	1	2.00%
NEPHROTIC	1	2.00%
OBSURO	2	4.00%
PCKD	1	2.00%
PHAEO	1	2.00%
R.RAS	1	2.00%
SING KID	1	2.00%
TAKA+CKD	1	2.00%
Total	50	100.00%

The above table shows distribution of patients according to diagnosis. The maximum (n=16, 32%) patients were diagnosed with Essential hypertension, 12 (24%) were diagnosed with CKD, 3 (6%) were diagnosed with AGLNE, 3 (6%) were diagnosed with CVA HTN, 3 (6%) were diagnosed with HYPOTHY, 2 (4%) were diagnosed with B/1 RAS, 2 (4%) were diagnosed with IHD HTN 2 (4%) were OBSURO.

V. Discussion

Patients with hypertension have some underlying mechanism that elevates their blood pressure conceptually, it is useful to think of patients with hypertension as having either essential HT (Karine, Bech et al 1975) - systemic hypertension of unknown cause, also called Primary hypertension or Secondary hypertension that results from an underlying identifiable, often correctable cause. The findings of such condition is particularly important since the underlying cause and thereby the hypertension may in some cases be remedied by surgical intervention. This is of course much to be preferred to prolonged drug therapy, which in some cases is not well tolerated.

Considering the high incidence of hypertension requiring treatment in general population, the study of hypertensive patient with object of revealing specific etiopathological factors must be considered as rather demanding task and is consequently today a discussed topic. Investigations, which are time consuming, costly and sophisticated, must of course be related to the incidence of secondary including curable hypertension.

50 pt's in the age group of 15-40yrs, diagnosed to have hypertension when blood pressure exceeded 140/90mm Hg as per the criteria laid down by JNC-VII were included ; all of them were indoor patients. In our study the conditions like hypertension due to eclampsia where in transient hypertension occurs, were not included. Of the total 50 patients, 32 were males and 18 were females. The largest number of patients in our study belonged to age group of 31-40 yrs.

Malignant hypertension was diagnosed as per the criteria of Milliez et al.

VI. Conclusion

- In young hypertensive the secondary causes are commonly found. Renal, endocrinal constitute most of the causes.
- In majority of the cases secondary hypertension can be diagnosed by history, physical examination, simple tests of blood, urine and ultrasound abdomen. The special investigations, were done, based on these parameters.
- If the underlying cause is corrected most of the secondary forms of hypertension are curable.
- Reinforcement of dietary measures and regular antihypertensive in the essential group is the treatment of choice.

VII. Summary

In the study of 50 young hypertensive with reference to clinical features the following observations were made.

- Secondary hypertension is the commonest cause of Hypertension in young patients and constituted 68% of all hypertensive.
- Essential hypertension constituted the
- single largest group and constituted 32% of all hypertensive.
- Renal pathology was the commonest cause of secondary hypertension 46%, followed by endocrine causes 8% which included Phaeochromocytoma (2%), and Hypothyroid(6 %), Takayasu's arteritis in 2%,
- Special investigations are used based on clinical findings and routine laboratory investigations.
- Essential hypertension was controlled with Antihypertensive treatment. Most commonly used antihypertensive was Hydrochlorothiazide followed by Amlodipine, Ramipril, Telmisartan, Prazosin, was used in 1 patient.
- Of 3 RAS patients who underwent renal angioplasty and stenting ,all 3 patients became normotensive and showed well control of BP without Drugs. In 2 patients blood pressure became easy to control with the antihypertensives.
- Totally 3 patients with secondary hypertension became normotensive after treatment. 23 patient's Hypertension was well under control, 10 patients required 2-3 anti-hypertensives for control of Hypertension.