



## TO STUDY THE CLINICAL PROFILE OF HYPERTENSION AND DIABETES MELLITUS IN ELDERLY PATIENTS.

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### ABSTRACT

**BACKGROUND:** The prevalence of hypertension and diabetes increases with age and they form major risk factors for increased morbidity and mortality rates among elderly.

- The clinical presentation of hypertension and diabetes in this subgroup is somewhat different from younger group of patients
- The Hospital admission rates not only depend on the increased prevalence of non communicable risk factors but also on nutritional status and socio-demographic profile in geriatric population.

### AIM OF THE STUDY

- To study the clinical, laboratory and complication profile of elderly hypertensives and diabetes
- To study associated cardiovascular risk factors and comorbid illness in them
- To study the frequency, reason for admissions to medical wards in these people.

**MATERIALS & METHODS:** Patients aged 60 years and above, admitted to the medical wards of Santhiram medical college and hospital with either diabetes mellitus or hypertension or both were taken for the study. These patients were evaluated for the presence of cardiovascular risk factors and target organ damage. The period of the study was 6 months, Ethical Committee approval was obtained for the study.

**RESULTS:** Half of these patients belonged to the age group of 60 – 75 years. Males being more than females by ratio of 1.5:1. Most people in this study were known hypertensive 44(69.8%) with average duration of hypertension for 3.4 years. Target organ damage was seen in 54% of these patients. Totally 44 (58.7%) patients were diabetics with average duration of diabetes for 2.6 years, of them 34(77.2%) of the diabetics were centrally obese. 34(75.6%) of males were smokers and 22(48.9%) were alcoholics, 43.3% of females were overweight. 34.7% of patients had hypercholesterolemia. In this 68(89.3%) of the patients were found to have chronic kidney disease, study 48(64%) had cardiac complications in the form of coronary artery disease or congestive heart failure. The Major cause for hospital admissions was heart failure (33.5%).

**CONCLUSION:** Awareness among the geriatric population on the need for early detection and treatment compliance for hypertension and diabetes is poor. This calls for community wide education on these non-communicable diseases. Cardiac complication were most common macrovascular complication among these people and most common microvascular complications being renal diseases. cardiac complications are the major cause for morbidity and mortality.

### KEYWORDS :

#### INTRODUCTION

Advances in medical science and improved social conditions during the past few decades have increased the life expectancy of humans. This phenomenon of population ageing has placed the developing nation, India, too amidst the demographic transition towards ageing trend. Further, graying of population is faster in India than many European and developed countries. This has changed the emphasis from communicable to non-communicable diseases.

The prevalence of diabetes and hypertension increases with age and they form the major risk factors for increased morbidity and mortality rates among the elderly. The clinical presentation of diabetes and hypertension in this subgroup is somewhat different from the younger group of patients and calls for studies on the unusual future.

Geriatric hospital admission rates not only depend on the increased prevalence of non communicable risk factors but also on their nutritional status and socio-demographic profile.

In-depth epidemiological studies on old people are the need of the day to understand and reflect on the necessities of the geriatric population. Hence this study is undertaken to have a detailed analyses of the hypertensive and diabetic elderly patients admitted to medical wards.

#### AIMS OF THE STUDY

- To study clinical, laboratory and complication profile of elderly diabetics and hypertensives.
- To study the associated cardiovascular risk factors and the comorbid illness in them.
- To study the frequency, reason for admissions to medical wards in these people.

#### MATERIALS AND METHODS

Patients aged 60 years and above, admitted to the medical wards of

Santhiram Medical College and Hospital with either hypertension or diabetes mellitus or both were taken up for the study.

These patients were evaluated for the presence of cardiovascular risk factors and target organ damage. The period of the study was six months. Ethical Committee approval was obtained for the study.

#### INCLUSION CRITERIA

- Patients aged 60 years and above
- Patients with either hypertension or diabetes mellitus or both were taken for study
- Patients with informed written consent

#### EXCLUSION CRITERIA

- Patients with the age less than 60 years
- Patients with age 60 years and above with no diabetes or hypertension were excluded from the study.
- Patients with no informed written consent.

#### The following data were collected and analysed.

1. Age, Sex, IP No
2. Details of Hypertension and Diabetes mellitus.

If the patients were already known to have hypertension or diabetes, the details of its duration, drugs taken, drug compliance, hypertension and diabetes control achieved were noted.

If the patients were found to have diabetes or hypertension in current admission then diabetes is diagnosed only if fasting blood sugar is  $\geq 126$ mg/dl or post prandial blood sugar is  $\geq 200$  mg/dl and hypertension is classified according to JNC VII staging system.

Reason for detection of hypertension or diabetes noted for all elderly

patients as, whether detection was part of workup for target organ damage or part of screening before target end organ damage.

**3. Other cardiovascular risk factors** such as alcoholism, obesity, smoking and central obesity, dyslipidemia, and their occupation were noted.

## RESULTS

A total of 75 patients aged 60 years and above admitted to the medical wards of Santhiram medical College and Hospital with either diabetes or hypertension or both were analyzed. Half of these patients belonged to the age group of 60 – 75 years and Mean age was 68 years, the age range was 60 – 88 years.

There were 45,30 males and females respectively with males being more than females by ratio of 1.5:1

### Age and sex distribution

Age in years	Male	Female	Total
60-64	12	7	19
65-69	15	8	23
70-74	9	8	17
75-79	6	5	11
80-84	1	2	3
≥85	2	0	2
Total	45	30	75

Mean Age ± SD : 68±6 years, Male: Female ratio 1.5:1

### Risk factor distribution

Age (yrs)	HTN only	DM only	Both HTN&DM
60-64	5	3	11
65-69	8	6	9
70-74	9	2	6
75-79	8	1	2
80-84	1	6	2
≥85	0	0	2
Total	31	12	32

### Reason for detection of hypertension

54% were detected to have hypertension only after target organ damage.46.2% of the patients were detected to have hypertension by screening before target organ damage. Target organ damage responsible for detection of hypertension were Heart Failure in 19.1%, Stroke events in 17.3%, Acute Coronary Syndrome in 11.00% and Renal Failure in 6.3%.

Reason for identification	No of patients with hypertension	Percentage of patients with hypertension	No of patient with diabetes mellitus	Percentage of patient with diabetes mellitus
Screening	29	46.2%	28	65.1
Acute coronary Syndrome	7	11.1%	3	7
Heart failure	12	19%	4	9.3
Stroke events	11	17.3	3	7
Renal failure	4	6.3	1	7
infections			1	2.3
metabolic complications			1	2.3

### Reason for detection of Diabetes

Only 65 % of the patients were detected to have diabetes by screening before target organ damage. Rest of the 35.1% was detected to have diabetes only after target organ damage. Target organ damage responsible for detection of hypertension were Heart Failure in 9.33%, Stroke Events in 7.1%, Acute Coronary Syndrome in 7.1% and Renal Failure in 7.2%.

Reason for identification	No of patients (%)
Screening	28 (65.1)
Acute Coronary Syndrome	3 (7)
Heart Failure	4 (9.3)
Stroke Events	3 (7)
Renal Failure	3 (7)
Infection	1 (2.3)
Metabolic Complications	1 (2.3)

### Smoking and Alcoholism

34(75.7%) of males and 1( 3.3%) of females were smokers and 22(48.9%) of males were alcoholics

### Serum cholesterol

34.8% of patients had hypercholesterolemia, 30.5% had cholesterol within normal range and 21.3% had below normal value.

Serum cholesterol	No of patients (%)
<150	16 (21.3)
150-200	23 (30.5)
>200	26 (34.8)

### Complication profile

Complication profile of our elderly hypertensives and diabetics showed that 48(64.4%) had cardiac complications in the form of coronary artery disease or congestive heart failure, 23(30.6%) had cerebrovascular complications, 6(8.4%) had peripheral vascular disease, 15(20.3%) had peripheral neuropathy and 67(89.3%) had chronic kidney disease.

Complication	No. of Patients
Cardiac	48(64.4%)
Cerebrovascular	23(30.6%)
Peripheral vascular disease	6(8.4%)
Peripheral neuropathy	15(20.3%)
and Chronic kidney disease	67(89.3%)

### Macrovascular Complications

#### Cardiac Complications

48(64.1%) out of 75 had cardiac events in the form of either coronary artery disease or congestive heart failure. 4.1%,28% and 41.4% of the 75 patients had features suggestive of unstable angina, stable angina and myocardial infarction respectively. Out of the 31 patients with myocardial infarction 16(51.8%) had clinically recognized myocardial infarction. Almost half of the patients (15(48.4%)) had clinically unrecognized (silent) myocardial infarction was diagnosed by routine electrocardiogram echocardiography screening showing regional wall motion abnormality . 5.3% of the patients had degenerative valvular heart disease. 41(54.6%) had features suggestive of cardiac failure

### Renal Disease

#### Renal impairment by GFR

67(89.4%) of the patients were found to have chronic kidney disease (GFR <90). 29.3%, 45.4%, 12% and 2.5% of the patients were in stage 2, 3, 4 and 5 chronic kidney disease respectively

### Hospital Admission Details

Total of 167 hospital admissions were reported in these patients. On an average the hospital admission rate is 0.5 per year in the study population.

### Causes for Hospital Admissions

The major cause for the hospital admissions were heart failure (33.6%), acute coronary syndrome (19.1%), stroke, its sequelae (19.1%), COPD (4.2%) and renal failure (3.5%)

## DISCUSSION

Nearly half of these patients belonged to the age group of 60 – 75 years with mean age being 68 years and the age range was 60 to 88 years. There were 45,30 males and females respectively with the males being more than females by ratio of 1.5:1.

32 (42.6%) had both Hypertension & Diabetes.

In our study, total 44 (58.6 %) patients were diabetics.

On assessing the Body mass index of the diabetic patients, our study showed 45.5% were normal weight 34 (77.4%) of the diabetics were centrally obese when defined by waist hip ratio(WHR). Our study showed that there was no statistically significant association between BMI and diabetes or central obesity and diabetes

### Other risk factors

**Smoking:** In our study 75.7% of males and 3.3% of females were smokers.

**Dyslipidemia:** In our study 34.8% of patients had hypercholesterolemia

### COMPLICATION PROFILE

Complication profile of our elderly hypertensives and diabetics

showed that 48(64.1%) had cardiac complications in the form of coronary artery disease or congestive heart failure 23(30.6%) had cerebrovascular complications, 6(8.4%) had peripheral vascular disease, 15(20.3%) had peripheral neuropathy and 67(89.3%) had chronic kidney disease.

### Renal disease

In our study, 67(89.4%) of the patients were found to have chronic kidney disease (GFR <90). Major causes for hospital admissions are heart failure (33.5%), acute coronary syndrome (19.2%), stroke and its sequelae (19.2%), COPD(4.2%), renal failure (3.5%).

### CONCLUSION

Cardiac complication is the most common macrovascular complication noted and renal disease is the most common microvascular complication. But cardiac complications are the major cause for morbidity and hospital admissions.

Awareness among the elderly Indians on the need for early detection and regular treatment for hypertension and diabetes is poor. This calls for community wide education on these non-communicable diseases.

Search for and recognition of silent MI and heart failure with preserved ejection fraction is important in these group of patients. Serum creatinine is not a good screening test for identifying renal disease in these patients.

It is important to realize the impact of a rapidly ageing population on our health care system. And we need to gear up for the future challenges posed by this ailing demographics. The various governmental and nongovernmental agencies must act in stride and take the required measures for the betterment of senior citizens.

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