

## A Clinical Study on Therapeutic Management and Impact of Patient Counselling on Hypertension

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### ABSTRACT

The face of hypertension has been changing rapidly over the last few decades, from a serious disease to a cardiovascular risk factor. Hypertension puts strain on the heart, probably leading to hypertensive heart disease and coronary artery disease. The first line of treatment for hypertension is to preventive lifestyle changes and which mainly includes dietary changes, physical exercise, and weight loss. These all have been shown significant reduction of blood pressure in people with hypertension. Diseases and medication related information help patients to adopt positive lifestyle that improves their health and quality of life. If hypertension is high enough to justify immediate use of medications, lifestyle changes are still recommended in conjunction with medication. Patient education has been instrumental in bringing about tremendous improvements in hypertension-related mortality, morbidity, life expectancy, and life quality. Patient counselling has evolved from an adjunct to medical therapy to an intervention in its own right. This was a four months prospective observational study in 1043 patients of private and public sector hospital and their case records were evaluated. The patients were counselled and patient information leaflets were given for their knowledge improvement. Further counselling was done with patient directly. Assessment of all collected data was done with statistical analysis.

**Keywords:** Blood pressure, dietary changes, hypertension, patient counselling, physical activity, patients information leaflets

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### INTRODUCTION

Many risk factors seem to play a role in the development of cardiovascular disease including smoking, serum cholesterol levels, obesity and sedentary life style. Reduction of these risk factors have been shown in several recent studies to have a beneficial effect by reducing the morbidity and mortality associated with hypertension [1]. Hypertension (HTN) or high blood pressure, sometimes called arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated. This requires the heart to work harder than normal to circulate blood through the blood vessels. Blood pressure involves two measurements, systolic and diastolic, which depend on whether the heart muscle is contracting (systole) or relaxed between beats (diastole). Normal blood pressure at rest is within the range of

100-140mmHg systolic (top reading) and 60-90mmHg diastolic (bottom reading). High blood pressure is said to be present if it is persistently at or above 140/90 mmHg. Hypertension is classified as either primary (essential) hypertension or secondary hypertension; about 90-95% of cases are categorized as "primary hypertension" which means high blood pressure with no obvious underlying medical cause [2]. The remaining 5-10% of cases (secondary hypertension) are caused by other conditions that affect the kidneys, arteries, heart or endocrine system. Dietary and lifestyle changes can improve blood pressure control and decrease the risk of associated health complications, drug treatment is necessary in people for whom lifestyle changes prove ineffective or insufficient[3]. Hypertension affects 30-

50% of older people. It is important risk factor for cardiovascular morbidity and mortality. Diuretics are considered as first line drug therapy, while beta-blockers, calcium channel blockers and ACE inhibitors have a when specific comorbidities are present [4].

Psychophysiological approaches to study the emotional behavior as it affects elevated blood pressure and heart disease. While anger and hostility are found to be correlated with hypertension, but the mechanism is not yet clearly specified [5]. Increased blood pressure reactivity to noxious stimuli may cause sustained hypertension. Borderline hypertension is characterized by hyperactivity [6]. Physical activity is valuable for weight control, modifying lipids and improving carbohydrate tolerance. Persistent physical activity most likely reduces the incidence of coronary heart disease and the detrimental impact of certain chronic diseases on health [7, 8]. The aim of the present study was to provide the information to the patients regarding proper directions of use, advice on side effects, proper storage, diet and life style modifications. It involves interaction between pharmacist and patient. The management of hypertension requires pharmacological as well as non-pharmacological methods. Non-pharmacological and pharmacological benefits can be achieved through the patients through patient counselling. Pharmacists can contribute to positive outcomes by educating and counselling patients to prepare and motivate them to follow their pharmacotherapeutic regimens and monitoring plans. Patient Information Leaflets (PILs) are by pharmacists for the benefit of the patients was the most important tool to educate the patient [9].

#### **Risk factors for hypertension**

Hypertension is not only one of the major risk factors for most forms of cardiovascular disease but that it is a condition with its own risk factors. A WHO scientific group has recently reviewed the risk factors for essential hypertension. These may be classified as:

- 1) Non modifiable risk factors
- 2) Modifiable risk factors

#### **1) NON MODIFIABLE RISK FACTORS:**

##### **A) Age:**

Blood pressure rises with age in both sexes and the rise is greater in those with higher initial blood pressure.

##### **B) Sex:**

Early in life there is a little evidence of a difference in blood pressure between the sexes. However, at adolescence, men display a higher average. This difference is most evident in young and middle aged adult.

##### **C) Genetic factors:**

There is considerable evidence that blood pressure levels are determined in part by genetic factors, and that the inheritance and polygenic. The evidence is based on their and family studies. Twin studies have confirmed the importance of genetic factors in hypertension. The blood pressure values of monozygotic twins are usually more strongly correlated than those of zygotic twins. Family studies have shown that the children of two normotensive parents have 3% possibility of developing hypertension, whereas this possibility is 45% in children of two hypertensive patients.

##### **D) Ethnicity:**

Population studies have consistently revealed higher blood pressure levels in black communities than other ethnic groups. Black Americans of African origin have been demonstrated to have higher blood pressure levels than white.

#### **2) MODIFIABLE RISK FACTORS:**

##### **A) Obesity:**

Epidemiological observations have been identified obesity as a risk factor for hypertension. The greater the weight gain, the greater the risk of high blood pressure.

##### **B) Salt Intake:**

There is an increasing body of evidence to the effect that a high salt intake (i.e; 7-8g per day) increases blood pressure proportionally. Besides sodium, there are other mineral elements such as potassium which are determinants of blood pressure potassium antagonizes the biological effects of sodium and thereby reduces blood pressure of mild to moderate hypertensives. Other cations such as calcium, cadmium and magnesium have also been suggested as of importance in reducing blood pressure levels.

**C) Saturated Effect:**

The evidence suggests that saturated fat raises blood pressure as well as serum cholesterol.

**D) Dietary Fibre:**

Several studies indicate that the risk of CHD & hypertension is immensely related to the consumption of dietary fibre. Most fibers residue plasma total and LDL cholesterol.

**E) Alcohol:**

High alcohol intake is associated with an increased risk of high blood pressure. It appears that alcohol consumption raises systolic blood pressure more than the diastolic.

**F) Heart Rate:**

When groups of normotensive and untreated hypertensive subjects unmatched for age and sex are compared, the heart rate of the hypertensive group is invariably higher.

**G) Environmental Stress:**

The term hypertension itself implies a disorder initiated by tension or stress. Virtually all studies on blood pressure and catecholamine levels in young people revealed significantly higher noradrenaline levels in hypertensives than in normotensives. This supports that the contention that over activity of the sympathetic nervous system has an important part to play in the pathogenesis of hypertension.

**H) Physical Activity:**

Physical activity reduces body weight which has an indirect effect on blood pressure [10].

**MATERIALS AND METHODS:****Place of Study**

This study was conducted in Narayana General and Superspeciality Hospital, Chinthareddypalem, Nellore. Which is a 1100 bedded hospital.

**Study Design**

This study was an observational descriptive study consisting of 1043 patients with hypertension following prescription analysis; patient was evaluated for their knowledge, attitude and management of hypertension.

**Intervention Study**

For intervention data 1043 case sheets were collected and analysed. The following method is followed for intervention. The case record of patients was examined for

details of prescription, to fill the data collection form. The doctors on duty/concerned cardiologist were consulted for clarification whenever required.

**Study Period**

The study was conducted from December 2011 to March 2012.

**Source of Data**

Patient data relevant to study was obtained from following sources

- Patient data collecting form
- Direct patient interview
- Patient knowledge, attitude, and patient questionnaire

**STUDY PROCEDURE****Patient Enrolment**

The patient who has been diagnosed as Hypertension was sent to the clinical pharmacist by the doctor. About 1043 patients those who were fulfilling the requirements were included in the study to access patient knowledge.

**Collection of Data**

At the base line patient details were collected through a self-diagnosed pre tested structured data collection form (annexure) by patient interview, prescription, patient data collection data included demographic details, past medical and medication history, family history, life style, laboratory details etc.

**Measuring Knowledge, Attitude and Practice on Management of Hypertension**

Patient knowledge about Hypertension was assessed by using patients knowledge attitude and questionnaire, (annexure). This questionnaire was first prepared in English and then translated to local language Telugu. This questionnaire assesses the patient basic knowledge about Hypertension, its risk factors completion and life style modification necessary in Hypertension patient. The answer "know" also considered a "YES" only. The answer "do not know" also was considered "NO" only.

An intervention based study was designed to evaluate the effect of patient counselling in the study population.

**Preparation of Patients Information Leaflets (PIL)**

The patient information leaflets were prepared for counselling the patient about

the disease. The PIL was prepared in English and local language for easy understanding for the patient. It contains information about the sign and symptoms of Hypertension, causes, life style modification [11].

- What is Hypertension?
- What are the signs and symptoms of Hypertension?
- What are the causes?
- How can Hypertension be prevention?

### Statistical Analysis

Microsoft word and excel had been used to generate graphs, tables.

## RESULTS AND DISCUSSION

### Age and Sex Distribution

A total of 1043 patients were taken for the study on treatment of Hypertension. In this 678 (65%) were males and 365(35%) females.

- In the age group 1-10 hypertension was found to be rare.
- The hypertension was 0.95% in the age group of 11-20years.
- The hypertension was 5.46% in the age group of 21-30 years.
- The hypertension was 15.72% in the age group of 31-40 years.
- The hypertension was 29.91% in the age group of 41-50 years.
- The hypertension was 27.90% in the age group of 51-60 years.
- The hypertension was 14.47% in the age group of 61-70 years.
- The hypertension was 4.31% in the age group of 71-80 years.
- The hypertension was 1.05% in the age group of 81-90 years.

- The hypertension was 0.09% in the age group of 91-100 years.
- The hypertension was higher in the age group of 41-50 years.
- The hypertension was lower in the age group of 11-20 years.
- The hypertension was higher in the age group of 41-50 years (Table 1 and Fig. 1) in males where as the hypertension was higher in the age group of 51-60 (Table 1 and Fig. 1) years in females [12].
- Hypertension was more in males than females.

### AGE VS SOCIAL HISTORY

A total of 1043 patients taken for the study. In this 678males, 392 (56.33%) were smokers, 304 (43.67%) were alcoholic [13, 14].

- In the age group 21-30 years 5.1% were smokers and 7.23% were alcoholic.
- In the age group 31-40 years 14.54% were smokers and 16.77% were alcoholic.
- In the age group 41-50 years 34.43% were smokers and 31.57% were alcoholic.
- In the age group 51-60 years 27.29% were smokers and 27.63% were alcoholic.
- In the age group 61-70 years 14.03% were smokers and 12.5% were alcoholic.
- In the age group 71-80 years 3.31% were smokers and 2.63% were alcoholic.
- In the age group 81-90 years 1.27% was smokers and 1.64 % was alcoholic.
- As per survey hypertension was more in smokers than alcoholic (Table 2 and Fig. 2).

**Table 1: Age and gender wise distribution of patients**

Age in years	Male	Female	Total
1-10	1(0.14%)		1(.09%)
11-20	5(0.73%)	5(1.36%)	10(0.95%)
21-30	37(5.45%)	20(5.48%)	57(5.46%)
31-40	107(15.78%)	57(15.62%)	164(15.72%)
41-50	211(31.12%)	101(27.67%)	312(29.91%)
51-60	187(27.58%)	104(28.49%)	291(27.90%)
61-70	91(13.42%)	60(16.43%)	151(14.47%)
71-80	30(4.42%)	15(4.1%)	45(4.31%)
81-90	8(1.17%)	3(0.82%)	11(1.05%)
91-100	1(0.14%)		1(0.09%)
Total	678(65%)	365(35%)	1043

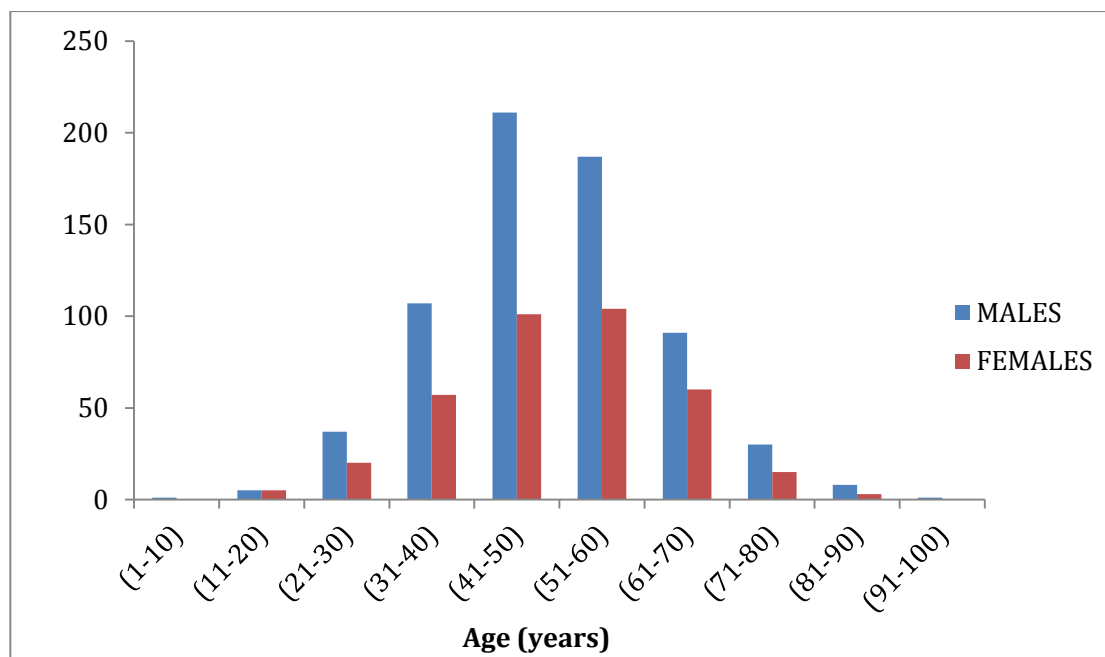


Figure 1: Age and gender wise distribution of patients

Table 2: Age and Social history of patients

Age in years	Smoker	Alcohol	Total
1-10	0	0	0
11-20	0	0	0
21-30	20(5.1%)	22(7.23%)	42(6.03%)
31-40	57(14.54%)	51(16.77%)	108(15.51%)
41-50	135(34.43%)	96(31.57%)	231(33.18%)
51-60	107(27.29%)	84(27.63%)	191(27.44%)
61-70	55(14.03%)	38(12.5%)	93(13.36%)
71-80	13(3.31%)	08(2.63%)	21(3.01%)
81-90	05(1.27%)	05(1.64%)	10(1.43%)
Total	392(56.33%)	304(43.67%)	696 (100%)

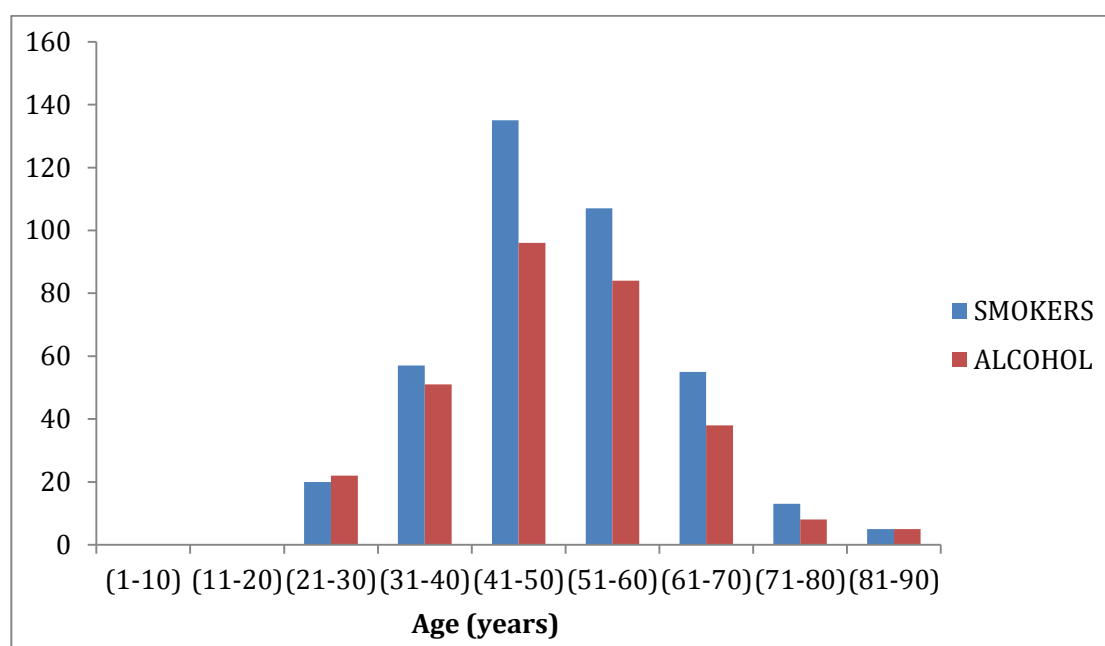


Figure 2: Age and Social history of patients

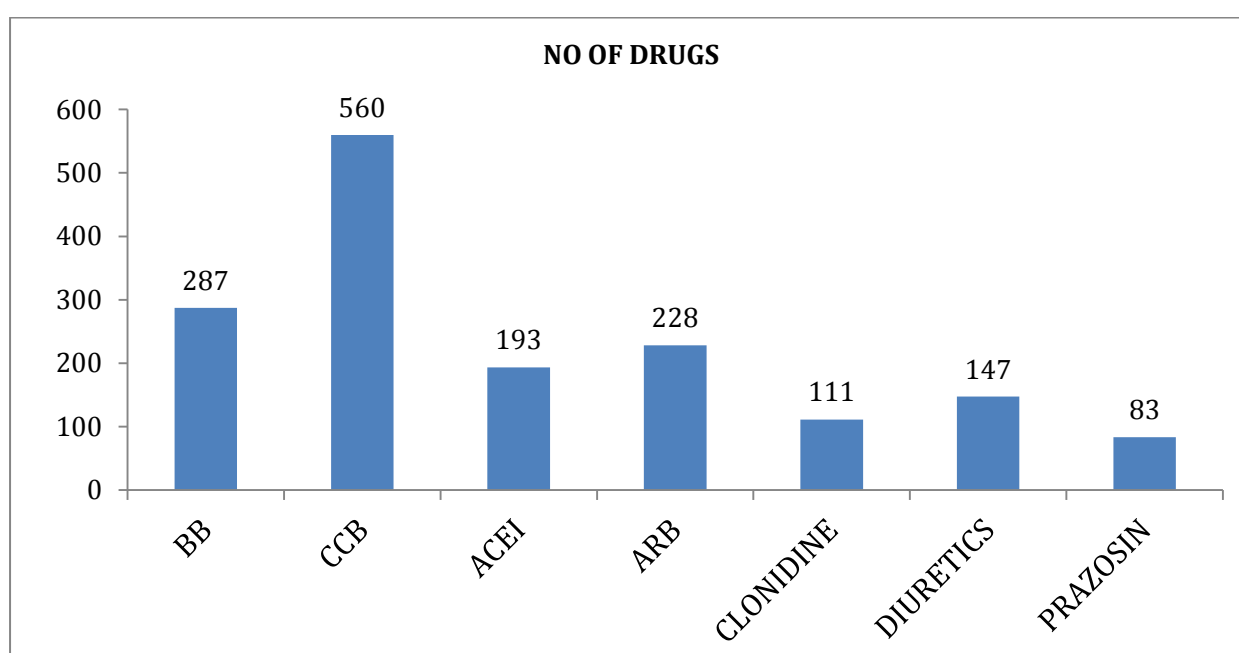
**DRUG PRESCRIPTION**

The mostly prescribed drug was Calcium channel blocker [15, 16] (34.80%) followed by Beta blocker (17.83%), Angiotensin

receptor blockers (14.17%), Angiotensin converting enzyme inhibitors (12%), Diuretics (9.13%), Clonidine (6.89%) and Prazosin (5.15%) (**Table 3 and Fig. 3**).

**Table 3: Category wise prescribed drugs for patients**

Drug Category	No. of Drugs
BB	287
CCB	560
ACEI	193
ARB	228
Clonidine	111
Diuretics	147
Prazosin	83

**Figure 3: Category wise prescribed drugs for patients****DIET**

A total of 1043 patients taken for the study. In this 224 were found to be vegetarian and

819 were Non-vegetarian. Hypertension was more in Non-vegetarian than vegetarian (**Table 4 and Fig. 4**).

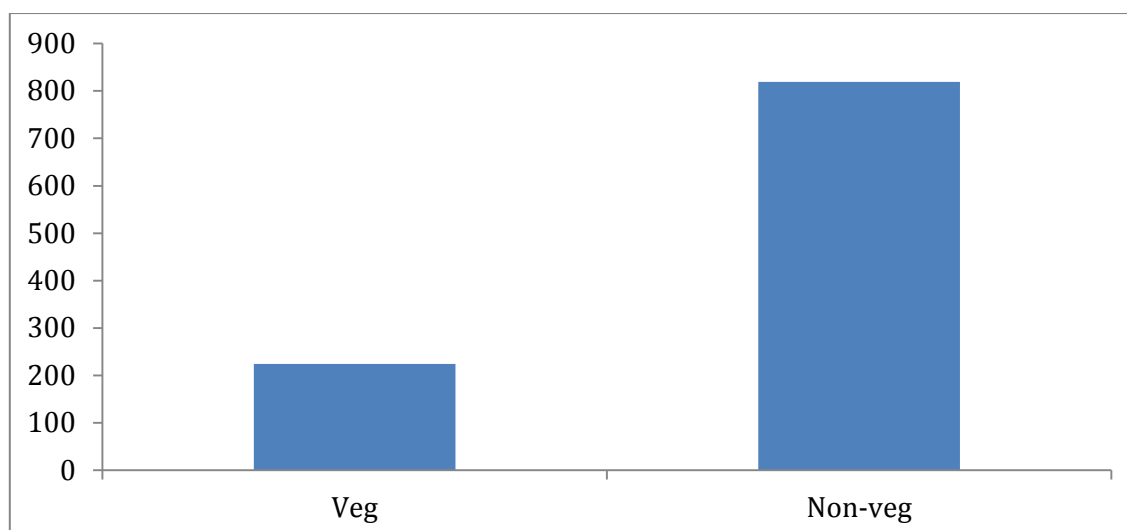
**Table 4: Diet taken by patients**

Vegetarian	Non-vegetarian	Total
224	819	1043

**CONCLUSION**

Patient education and medication counselling are the base management of the disease like hypertension where the base line knowledge about the disease is low among the people 1043 patients were counselled regarding their knowledge, attitude and practice on hypertension. The number of patients who were counselled showed very large effect after counselling. Patient counselling produced significant

improvement in patients knowledge, attitude and practice score regarding the management of hypertension and there by better therapeutic outcome. This shows that counselling does very important role in hypertension. The clinical pharmacist can play a major role in improving patient's knowledge and adherence by patient education by developing education materials like patient information leaflets.



**Figure 4: Bar diagram of diet taken by patients**

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