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Original Article

# EFFECT OF PHARMACIST MEDIATED PATIENT COUNSELING IN HYPERTENSIVE PATIENTS IN TERMS OF KNOWLEDGE, COMPLIANCE AND LIFESTYLE MODIFICATION

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**ABSTRACT**

**Objective:** The main objective of the study is to evaluate the impact of Patient Counseling in Hypertensive Patients in terms of Patient Knowledge, Compliance and Lifestyle modification.

**Methods:** The prospective study was conducted over a period of six months in the Department of Medicine, Bharati Hospital, Pune. The patients were counseled and patient information leaflets were given for knowledge enhancement. Further follow ups and counseling was done on patient visits for their review or telephonically. Assessment of all collected data was done with statistical analysis.

**Results:** A total of 118 Hypertensive patients were included in the study but only 102 patients of them were enrolled in the study as per the inclusion and exclusion criteria and counseling was done.During the first follow-up only 92 patients were assessed and during the second follow-up only 62 patients attended the Patient Group Education Programme and rest 30 patients were assessed telephonically. Assessment of the patients was done to know the effect of Pharmacist Mediated Patient Counseling. The P value was calculated and found to be *P = 0.0027, by conventional criteria this difference is considered to be very statistically significant.

**Conclusion:** The present study confirms that the pharmacist provided patient counseling is effective in improving patients knowledge towards the disease management.

**Keywords**: Hypertension (HTN), Blood Pressure (BP), Patient counseling, Compliance, Life style modification, Patient information leaflets (PILs).

## INTRODUCTION

Hypertension is an important public health challenge because of the associated morbidity and mortality caused by cardiovascular diseases and the cost to society. Hypertension is very common chronic disease in rural, urban and semi urban areas of today's world, which needs continuous monitoring and treatment throughout the life [1].

Hypertension nearly affects 26% of adult population worldwide. By 2025 it is projected that 29% of the world's population (1.56 billion adults) will have Hypertension, in 2000 over 972 million adult populations were estimated to have hypertension. Indian population accounts for 66 million Hypertensive patients (34 million are in urban areas and 32 million in rural areas) [2, 3]. In India, the prevalence of Hypertension reports was increasing rapidly, in the urban, i.e.25% of adults, and gradually even in rural areas, i.e.10% of individuals are affected. This indicates that medication non-adherence is the multifaceted problem, responsible for increasing the important medical and public health issues like worsened therapeutic outcome, higher hospitalization rates and increased health care costs [1]. Uncontrolled B.P accounts for 7.1 million deaths worldwide each year [3]. It doubles the risk of cardiovascular diseases including stroke, congestive heart failure, coronary heart disease, renal failure.

Patients with Hypertension may fail to follow their medication, because of a symptomless nature of their condition, long duration of therapy, side effects, complicated drug regimens, lack of understanding about hypertension management and risks, problem of economic status and individual differences among medications [7]. Socio economic factors, life style, nutrition, lack of patient motivation, lack of patient education programs and adverse reactions to antihypertensive drugs all could contribute significantly to non-compliance [5].

Patient counseling may be defined as providing medication information orally or in written form to the patients or their representative or providing proper directions of use, advice on side effects, storage, diet and life style modifications. It involves interaction between a pharmacist and a patient and/or a care giver. It is interactive in nature (Beardsley, 1997); ASHP, 1997).

The management of hypertension requires non-pharmacological as well as pharmacological methods [9]. Non-pharmacological and pharmacological benefits can be achieved through the patients understanding of disease, medications & lifestyle modification, when the pharmacist provides them practical information via counseling.

Pharmacists can contribute to positive outcomes by educating and counseling patients to prepare and motivate them to follow their pharmacotherapeutic regimens and monitoring plans [5]. Patient Information Leaflets (PILs) are produced by either manufacturer or pharmacists for the benefit of the patients and are universally accepted as the most important tool to educate the patient. Illiteracy remains a pervasive problem that compromises quality health care, limits understanding of health information, and potentially leads to poor health outcomes. The use of pictorial aids enhances patients understanding of how they should take their medications, particularly when pictures are used in combination with written or oral instructions [6].

## MATERIALS AND METHODS

The study was carried out in Bharati Hospital and Research Center, Dhankawdi, Pune, Tertiary Care Hospital. It was a Prospective study, approved by Ethics Committee of Bharati Medical College, Pune (BVDU/MC/14).The Study was conducted for 6 months i.e. from September 2012 to February 2013. In this study there were 102 patients of either sex were included after taking written informed consent. Patient inclusion and exclusion criteria were provided in

Table 1. The data collection form was prepared and used which includes patient as well as medication related information. The patients were counseled and patient information leaflets which were designed are given for knowledge enhancement. Further follow ups and counseling was done on patient visits for their review or telephonically. Statistical presentation and analysis of the present data was carried out using *Paired-t test.* Microsoft Excel 2007 was used to calculate the data sets and interpret in terms of percentages, mean, standard deviation and *P< 0.05 will be considered as significant.

**Table 1: Eligibility criteria**

| |
|---|
| **Inclusion** |
| • Inpatients and Outpatients of General Medicine Department who were diagnosed and on medication for hypertension. |
| • 18 years and above patients of either sex. |
| • Patients who were willing to participate and give the consent form. |
| • Hypertensive patients with or without other co-morbid conditions |
| **Exclusion** |
| • Pregnant and lactating women. |
| • Pediatric population. |
| • Patients with severe chronic illness and patients in ICU |

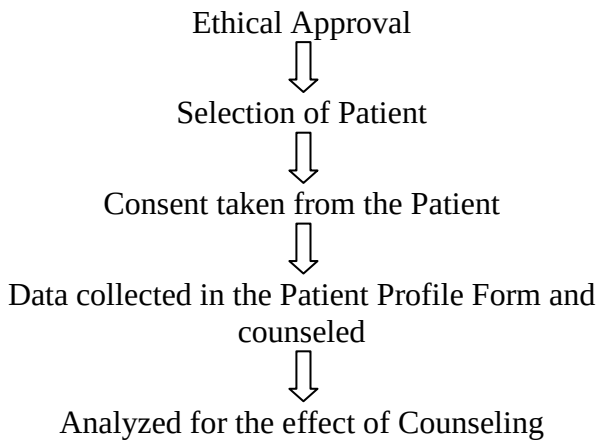


**Fig. 1: Study Procedure**

## RESULTS

A total of 118 Hypertensive patients were included in the study but only 102 patients of them were enrolled in the study as per the inclusion and exclusion criteria stated in the protocol and counseling was done. During the first follow-up only 92 patients were assessed, because of lost to follow-up of 10 patients and during the second follow-up only 62 patients attended the Patient Group Education Program and rest 30 patients were assessed telephonically.

There were 54 (52.9%) males and 48 (47.0%) females (Fig 2), maximum patients were within age interval of 51-70 years (37.2%) and minimum were 21-30 years (1.96%) (Fig3). Considering the educational status of the study population, there were 30 (29.4%) number of patients who are illiterates and 18 (17.6%) patients who had tertiary education (Table 2). The family history of the patients revealed that majority of the patients 56 (54.9%) do not have any family history of hypertension, followed by 38 (37.2%) in whom there were underlying family history of Hypertension (Fig 4). According to WHO guidelines for BMI, there were higher number of patients with overweight 60 (58.8%), followed by 30 (29.4%) patients who are normal weight and 6 (5.8%) patients are obese (Fig 5). Co-morbidity of study population was found to be that there were 60 (58.8%) patients who have co-morbidity and 42 (41.1%) patients were with no co-morbidity (Fig 6).

The social habits of the study population was observed and found to be that, most of the patients were having the habit of chewing the tobacco 38 (37.2%), followed by alcohol intake 22 (21.5%). Most of the patients were going for regular BP check-up i.e. monthly 46 (45.0%) and many of the patients 42 (41.1%) were not going for BP check-up.

At the beginning of the study the mean SBP and DBP of the study population was found to be 143.6 mmHg and 93.2 mmHg respectively. At the end of the study the BP was controlled, where SBP was reduced by 2.8 mmHg and DBP was reduced by 3.6 mmHg (Table 3).

The pharmacist mediated patient counseling of hypertensive patients was studied in 102 individuals who were assessed for the Knowledge, Compliance and Lifestyle modification before and after the study and its significance was tested with Paired –T test, there was substantial increase in their Knowledge, Compliance and Lifestyle modification and it was very statistically significant.(Table 4). The P value was calculated and found to be P = 0.0027, by conventional criteria this difference is considered to be very statistically significant. There is a significant increase in the knowledge of the study population after pharmacist mediated counseling mainly in terms of disease, signs and symptoms and then followed by good improvement in the aspects of knowledge about complications caused by underlying hypertension disease. The compliance was found to be increased in the patients after the counseling sessions, as the patients were able to remember to take the medications regularly i.e. the knowledge about the duration and frequency of the medications to be taken has been increased. In the aspects of lifestyle modification, the practice dimension represents those who have put into practice the things they learnt during counseling. It consists of questions regarding non pharmacological approach like exercising, reducing salt intake, having proper diet, limiting alcohol intake, decreasing the habit of chewing tobacco, in all these aspects there has been an improvement. Among 102 patients, overall 80 (78.31%) patients were treated with single antihypertensive drug and 22 (21.56%) patients were treated with antihypertensive drug combination. Among the patients who were treated with monotherapy, Calcium channel blockers 44 (43.1%) were most prescribed. In combination therapy of antihypertensive drugs, CCBs + BBs 6 (5.8%) and ARBs + Thiazide Diuretics 6 (5.8%) were more prescribed. (Table 5).

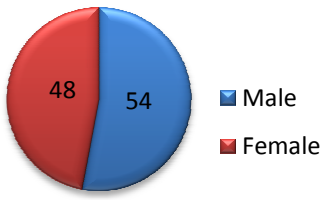


**Fig. 2: Gender wise distribution of Study Population**

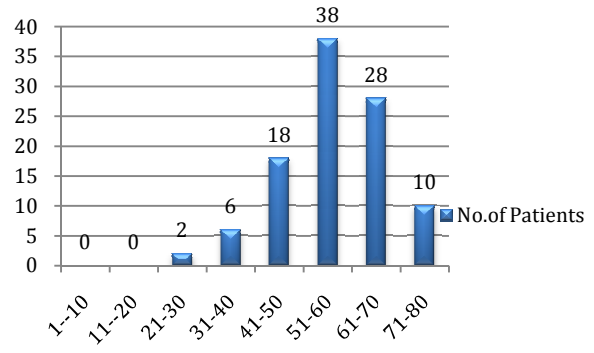


**Fig. 3: Age wise distribution of Study Population**

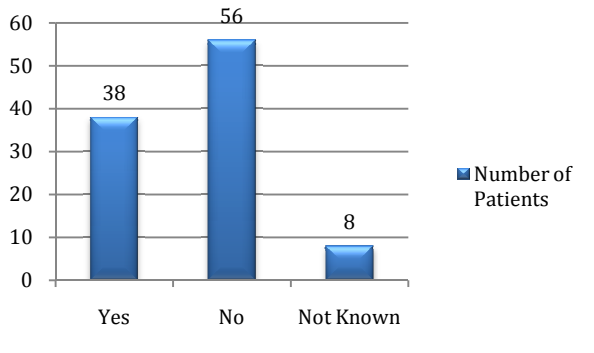


**Fig. 4: Family history of Study Population**




**Fig. 5: Body Mass Index of Study Population**




**Fig . 6: Comorbidities in the Study Population**

**Table 2: Distribution of Study Population by Educational status**

| Education | Frequency | Percentage (%) |
|---|---|---|
| Illiterate | 30 | 29.41 |
| Primary | 28 | 27.45 |
| Secondary | 26 | 25.49 |
| Tertiary | 18 | 17.65 |
| Total | 102 | 100 |

**Table 3: Blood Pressure values**

| Blood Pressure (mmHg) | Baseline (n=102) | End of the Study (n=92) |
|---|---|---|
| Mean Systolic | 143.6mmHg | 140.8mmHg |
| Mean Diastolic | 93.2mmHg | 89.6mmHg |

## DISCUSSION

In our study mostly the patients were males 54 (52.9%). The disease is more prevalent in males as they were having social habits like smoking, alcohol consumption and tobacco chewing. This percentage does not differ greatly from the percentage males (51.1%) and females (48.8%) ; males (58.2%) and females (41.7); males (51.2) and females (48.7%) reported by [4,3,1] respectively. The values differ from the other study [7], in which there is higher percentage of females (60%) than males (40%). The peresent study shows that maximum patients were within age interval of 51-70 years (37.2%) and minimum were 21-30 years (1.96%) which is nearly equal to the values 51-60 years (32%), 61-70 years (23%); 51-60 years (34.6%), 61-70 years (38.5%) mentioned in the studies [4,2] respectively. Only one individual of age 21-30 years was found to be having hypertension which is in corelation with the study [1] in which only 2 individuals of age 20-30 were having hypertension. Considering the educational status of the study population, there were more number of patients who are illiterates with 30 (29.4%) which is in line to (24.4%) as reported by [1], and more munber of illiterates were reported in similar studies conducted by [3,2]. The Body Mass Index of study population was calculated and found to be that many of the there were overweight 60 (58.8%) and 6 (5.8%) patients are obese which differs to the study having more number of patients with normal weight reported by [2] and in contrast to many number of patients (30.5%) who are obese. Comorbidities in the current study was observed, more prevalance of Diabetes Mellitus (17.6%) which was found to be in agreement with the findings of [7] (18%) and [6] (15.6%). Another major co-morbidity was found to be cardio vascular diseases (15.6%) which is almost double to the findings (8%) of [7].

The social habits revealed that, most of the patients were having the habit of chewing the tobacco or smoking 38 (37.2%) which is very much higher to (8%) reported by [18] and (9%) reported by [7]. In this study some of the patients (21.5%) were alcoholics but other studies by [2], revealed still higher percentage (53.8%) of alcoholics. Family history of hypertension was found to be (37.7%) which is

slightly more than (25.6%) mentioned by [4] and contrast to no suggestive family history for hypertension reported by [2]. Many patients in the present study were having underlying genetic predisposition for Hypertension. In the study most of the patients were going for regular BP check-up i.e., monthly 46 (45.0%) which is in contrast to (40%) patients who go for check-up once in 6 months.

**Table 4: Distribution of Study Population by Knowledge, Compliance and Lifestyle modification**

| Knowledge | Before | After | P-value | Significance |
|---|---|---|---|---|
| Do you know about your disease? | 26 | 80 | P=0.0027 | H.S. |
| Do you know about signs and symptoms of the disease? | 52 | 92 | P=0.0027 | H.S. |
| Do you know any progressive and possible complications of the disease? | 4 | 32 | P=0.0027 | H.S. |
| Do you know how to control/prevent the disease? | 0 | 8 | P=0.0027 | H.S. |
| Do you know the name of your medication? | 22 | 28 | P=0.0027 | H.S. |
| Do you know the dose of your medication? | 24 | 24 | P=0.0027 | H.S. |
| Do you know the frequency and duration of your medication? | 56 | 90 | P=0.0027 | H.S. |
| Do you know the purpose of your medication? | 12 | 18 | P=0.0027 | H.S. |
| Do you know the possible side effects of your medicines? | 0 | 0 | P=0.0027 | H.S. |
| Do you know what to do in case of missed dose? | 2 | 6 | P=0.0027 | H.S. |
| Do you know how to store your medication? | 4 | 8 | P=0.0027 | H.S. |
| Do you know what precautions to be taken while taking medications? | 2 | 6 | P=0.0027 | H.S. |
| Practice | | | | |
| Exercise | 20 | 50 | P=0.0027 | H.S. |
| Diet | 24 | 74 | P=0.0027 | H.S. |
| Alcohol /smoking/Tobacco/Gutka | 16 | 44 | P=0.0027 | H.S. |

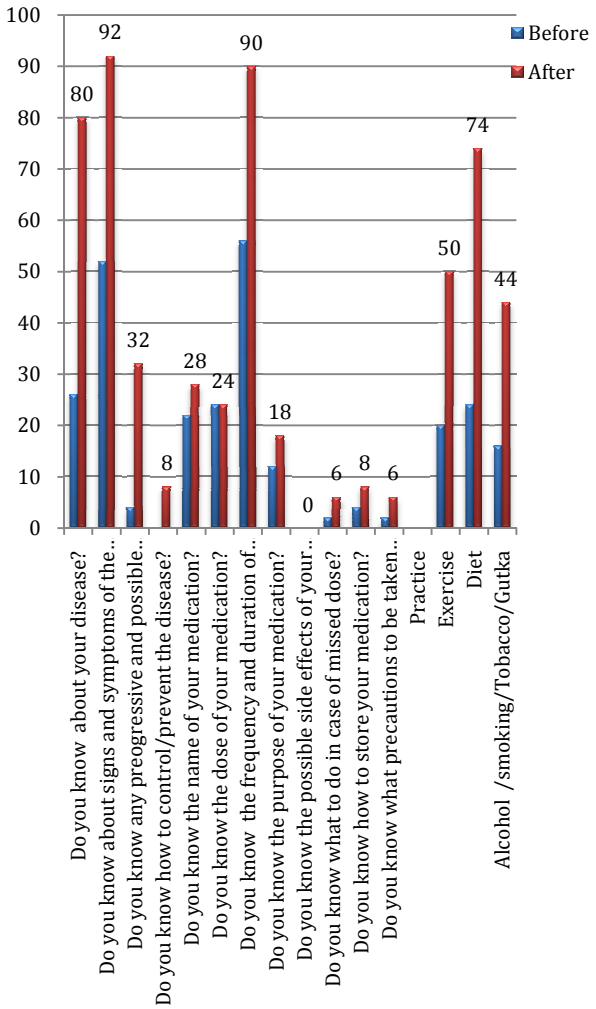


**Fig. 8: Distribution of Study Population by Knowledge, Compliance and Lifestyle modification**

This study showed significant reduction of SBP and DBP which is similar to the study conducted by [3]. The P value was found to be *P = 0.0027 very statistically significant which is similar to study conducted by [1] in south Indian city (P<0.05). One of the study conducted on rural hypertensive patients concluded that there was a very good improvement in intervention when compared to the control group because the intervention group patients were provided with counseling,

PILs and frequent telephone reminding. Pattern of drug utilization in the present study was found to be that (78.4%) patients were treated with single anti-hypertensive drug which is higher to (54.8%) reported by [21]. CCBs (43.1%) are the most prescribed drugs which is in agreement with (45.8%) mentioned in the study by [21]. but which is in contrast to BBs (36.4%) prescribed in the study conducted by [5].

## CONCLUSION

The present study confirms that the pharmacist provided patient counseling is effective in improving patients knowledge towards the disease management also addresses the pharmacists role on effective participation in the management of hypertensive patients as an essential supplement to traditional physician only mode. There is a significant increase in the knowledge of the study population after pharmacist mediated counseling mainly in terms of disease, signs and symptoms and then followed by good improvement in the aspects of complications caused by underlying hypertension disease. At the end of the study the blood pressure was controlled. The compliance was found to be increased in the patients after the counseling sessions. This study also concluded that pharmacist involvement or need is very important in other chronic disease management like diabetes mellitus, cardiovascular diseases etc.

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