

Impact of Patient Education given to Hypertensive Patients and their Caretakers in Terms of Knowledge, Compliance and Lifestyle Modification

Sunita Pawar¹, Asawari Raut² and Atmaram Pawar³

^{1,2,3}Poona College of Pharmacy Bharati Vidyapeeth University, Pune
E-mail: ¹sunita.reva@gmail.com, ²asawari.raut@gmail.com, ³p_atmaram@rediffmail.com

Abstract—The human and economic consequences of inappropriate medication use have been the subject of professional, public, and congressional discourse for more than two decades. Hypertension is an important public health challenge because of the associated morbidity and mortality caused by cardiovascular diseases and the cost to society. The benefits can be achieved through the patients understanding of disease, medications, compliance & lifestyle modification, when clinical pharmacist provides them with useful practical information by educating them. **Objective:** The objective of the study was to evaluate the Impact of Patient Education given to Hypertensive Patients and their Caretakers in terms of Knowledge, Compliance and Lifestyle modification. **Methods:** The prospective study was conducted over a period of eight months in a Tertiary Care Hospital of Pune. The patients and their caretakers were educated about hypertension, its management, compliance and lifestyle modification. Patient information leaflets were prepared and given for knowledge enhancement Further periodic follow ups were done and re-education was imparted to patient at their review visits or telephonically as required. Followed to this two group patient education programs were conducted as follow up at hospital and at Primary Health Care Centre (PHC) of Pune District for urban and rural participants. Assessment of all collected data was done with statistical analysis. **Results:** A total of 122 Hypertensive were included in the study as per eligibility criteria and education was imparted to them by clinical pharmacist. During the first follow-up only 112 participants were assessed and during the second follow-up 82 participants were assessed and rest 40 patients were assessed telephonically. Assessment was done with the help of KAP questionnaire to know the effect of Clinical Pharmacist Mediated Hypertension Education. The P value was calculated and found to be $P = 0.0027$, by conventional criteria this difference was very significant statistically. At group patient education program 45 from urban and 200 rural participants were highly benefited in terms of their knowledge. **Conclusion:** The present study confirms that the clinical pharmacist provided patient education, is effective in improving patient's knowledge towards the disease management which resulted in increased compliance towards their medication and change in life style leading to positive health outcomes.

1. INTRODUCTION

World Health Organization (WHO) has reported that hypertension is more prevalent in low and lower-middle income countries than high and middle-income countries. Global burden of diseases study reported that in the year 1990 there were 350 million persons with hypertension globally, this increased to about 500 million in the year 2005 and poised to increase to about one billion in 2025. The latest iteration of global burden of diseases has reported that while prevalence of hypertension has stabilized in high and middle-income countries, it continues to increase in low and lower-middle income countries such as India.¹

Current studies have shown that hypertension is present in 25 to 30% urban and 15 to 20% rural adults in India.¹ Once a disease reaches certain threshold prevalence (typically >5%), it attains public health importance. Hypertension- perfectly fits the bill and has been called endemic, epidemic, and a pandemic. ¹

High absolute number of hypertensive subjects in both urban and rural Indian subjects presages an epidemic of cardiovascular diseases with devastating consequences. Hypertension is the most important stroke risk factor in India. Prospective urban rural epidemiology (PURE) study has reported greater cardiovascular mortality- among rural compared to urban subjects in low-income countries (mainly India) despite lower risk factor burden. This is associated with low awareness, treatment and control status of hypertension in the country.

Public health measures such as policy changes and population wide interventions supplemented with individual risk-based treatment has changed the hypertension scenario in developed countries. These measures have led to marked decrease (50–100%) in mortality from stroke and coronary heart disease in these countries in the last 50 years. ¹

These interventions include policy-level, health system-level, population-level and clinic based individual-level interventions. Policy and system level interventions should be focused on public education and screening, while population level interventions should focus on reduced intake of salt and alcohol, smoking cessation, promotion of healthy diet and facilitation of physical activity.¹

Patients with Hypertension may fail to follow their medication, because of a symptomless nature of their condition, long duration of therapy, side effects of medication, complicated drug regimens, lack of understanding about hypertension management and risks, problem of economic status and individual differences among medications.² Unfortunately, majority of the patients on antihypertensive medication fail to achieve their recommended target BP and it can lead to huge adverse impact on quality of life. Socio economic factors, life style, nutritional factors and lack of patient motivation, lack of patient education programs and adverse reactions to antihypertensive drugs all could contribute significantly to this problem of non-compliance.³

The human and economic consequences of inappropriate medication use have been the subject of professional, public, and congressional discourse for more than two decades. The pharmacy profession has accepted responsibility for providing patient education and counseling in the context of pharmaceutical care to improve patient adherence and reduce medication-related problems.⁴

Pharmacists can contribute to positive outcomes by educating and counseling patients to prepare and motivate them to follow their pharmacotherapeutic regimens and monitoring plans.³ In working with individual patients, patient groups, families, and caregivers, pharmacists should approach education and counseling as interrelated activities. In pharmaceutical -care, pharmacists should encourage patients to seek education and counseling and should eliminate barriers to providing it.⁵

Patient counseling and education leads to a positive behavior through which patient is motivated to improve medication adherence. Unlike acute illness, the chronic illness requires hospital stay, self monitoring, follow up, lifelong drug therapy, non pharmacological measures and several lifestyle modifications. Therefore patient education has becoming a growing need in chronic illness.⁶

Patient education is an individualized, systematic, structured process to assess and impart knowledge or develop a skill in order to effect a change in behavior. The goal is to increase comprehension and participation in the self-management of health care needs. The patient/family/significant others play an active part in the process.⁷

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 about their medications and disease. Patient

information leaflets are widely used by diverse health organizations and professionals as part of patient education or health promotion efforts, in support of preventive, treatment and compliance objectives. 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.⁸

Pharmacist can also play an active role through counseling and educating patients and caregivers in some of the commonly seen chronic illness like hypertension, diabetes, coronary heart disease, dyslipidemia, asthma, epilepsy, rheumatoid arthritis.⁹

2. METHODOLOGY

The study was carried out in a Tertiary Care Hospital and Primary Healthcare Centre of Pune district in Maharashtra. It was a Prospective study, approved by Ethics Committee of Hospital. The Study was conducted for 8 months. In this study patients of either sex complying with eligibility criteria(Fig1), were included after taking written informed consent. The patient data form was prepared and used for collecting patient details and complete treatment details.

The patients were provided education on Hypertension, medication management and lifestyle modification on one to one basis and pharmacist designed patient information leaflets were given to them for their knowledge enhancement. Further periodic follow up counseling was done on patient visits for their review or telephonically. Assessment was done with the help of Knowledge, Attitude and Practice (KAP) questionnaire which was administered and scoring was given individually before and after imparting education, to know the effect of Clinical Pharmacist Mediated Hypertension Education. Statistical presentation and analysis of the 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 was set to be considered as significant. At the end of the study, two group patient education programs were conducted for the patients and their caretakers at hospital level for urban population and community level at PHC level for rural population Focused Group Discussion (FGD) was done during the program and feedback was taken from the participants .

Fig.1:Eligibility criteria used:

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
- Caretakers of patients and others

Exclusion

- Pregnant and lactating women.
- Pediatric population.
- Patients with severe chronic illness and patients in ICU

3. RESULT AND DISCUSSION:

Demographic observations and outcomes:

A total of 138 Hypertensive patients were identified in the study but only 122 of them were enrolled in the study as per the inclusion and exclusion criteria stated in the protocol and education was given. During the first follow-up only 112 patients were assessed, because of lost to follow-up of 10 patients and during the second follow-up only 82 patients were Group Education Program and rest 40 patients were assessed telephonically. There were 64 (52.9%) males and 58 (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 40 (29.4%) number of patients who are illiterates and 28 (17.6%) patients who had tertiary education . The family history of the patients revealed that majority of the patients 66 (54.9%) did not have any family history of hypertension, followed by 48 (37.2%) in whom there were underlying family history of Hypertension .

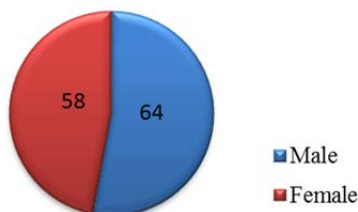


Fig. 2: Gender wise distribution of Study Population

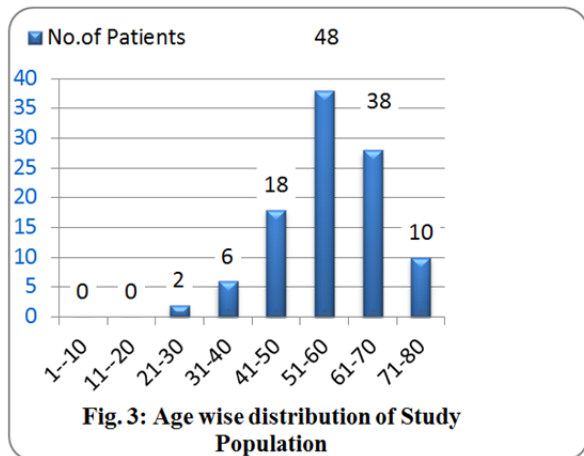


Fig. 3: Age wise distribution of Study Population

Hypertension. 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. 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. 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 .

Impact of one to one basis Patient Education by Clinical Pharmacist on Hypertensive Patients:

Pharmacist mediated patient counseling of hypertensive patients was studied in 122 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 related most of the aspects. The P value was calculated and found to be P = 0.0027, by conventional criteria this difference is considered to be very statistically significant (Fig.4).

There was a significant increase from 40-90%, in the knowledge of the study population after pharmacist mediated one to one basis counseling mainly in terms of information on hypertension disease, its signs and symptoms and then followed by good improvement in knowledge about complications caused by underlying hypertension disease. The compliance was found to be increased in 78% of patients after the counseling sessions and post follow up, 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 was increased.

In the aspects of lifestyle modification, the practice dimension represented those who have put into practice the things they learnt during counseling. It consisted of questions regarding non pharmacological approaches 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.

lead to overall improved practice of the patients and gave them positive clinical benefit.

Limitation: Only two follow ups were done due to short span of study period. Many patients were lost to follow up in second follow up. More elaborate data is required to be studied to extrapolate on larger population.

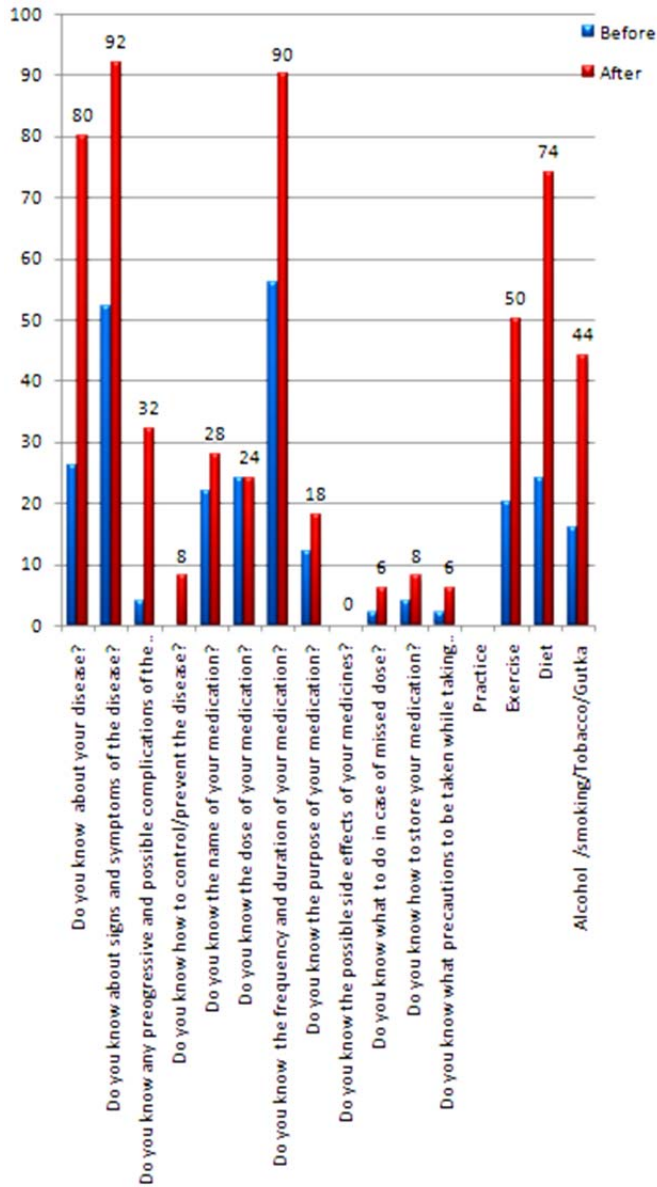


Fig. 4: Distribution of Study Population by Knowledge, Compliance and Lifestyle modification

There was very little impact on KAP on certain aspects with regards to drug storage, missed dose and prevention aspects of disease. Also no impact on side effects of medication was observed This needed more emphasis and re-education.

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.11 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 .Apart from effect of the medicine, this benefit could be correlated with improvement in the knowledge of the patient about disease management and improved adherence due to patient education received.This

Impact of Focused Group Discussion (FGD) on Participant Caretakers from Urban and Rural areas:

In case of group patient education program conducted for patients relative for urban 45 caretakers at hospital and rural 200 participants at PHC level following was the outcome:

Urban participants

Pharmacist conducted a focused group discussion with a group of 45 participants who were mainly patient's caretakers. They were asked about the information on disease, medication details, compliance, disease complications and lifestyle care to be taken for hypertension. It was observed that participants were not at all aware of critical aspects of hypertension like risk factors responsible, types of BP, dosage regimen , how to take medications, when to take medications and side effects of medications, in case of missed dose what should be done and importance of lifestyle management. They only knew the name of the medicines prescribed and that their patient was diagnosed of blood pressure and few aspects like less oily diet to be eaten.

After delivery of education by clinical pharmacist on disease, complications , risk factors, medication management, importance of compliance and administration of medicines, lifestyle changes in terms of diet and exercise, it was found that they all gained good amount of knowledge post session. On repeating the questions which they were not able to answer initially it was found that there was almost 90% improvement in their knowledge and almost all of them were willing to practice the changes needed and follow what was important for managing hypertension in their patients and take preventive measures for themselves as well. This proved that education had created increment in their knowledge and positivity in their attitude.

Rural participants

In case of rural participants they were not at all aware about that they were suffering from hypertension and have been prescribed hypertensive medications. They were first counseled to get their BP checked and confirm it once again and were imparted know ledge on Hypertension, medications and lifestyle management in layman's language .Compared to urban participants rural people did not have any insight about their problems first of all and also did not have any knowledge on BP and its management. They were totally lacking on awareness and were found to be hypertensive on recheck ups.The Confirmed hypertension was maximally found in geriatrics from age of 51 years onwards which was at uncontrolled status for most of them.

There were about 200 rural participants who were educated on various aspects of hypertension like the knowledge of disease, causes, signs/ symptoms, its complications, treatment and precautions. Patient information leaflets and medication instructions leaflets were distributed after the program for better patient knowledge. Apart from patients, caretakers, all

other health care professionals of the Primary Healthcare Centre (PHC) like Doctor, Nurses, Pharmacist and Attendants also participated. The outcome of the program was very satisfactory which was reflected in the feedback received from patients, their family members and the staff of PHC.

Limitation: Practices could not be measured since it was one time discussion with no follow ups done further. Continuous sessions with periodic follow ups can give better results.

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.¹²

Feedback from participants:

All the participants, patients and their caretakers suggested that in future also they would be very happy to receive this kind of information, since they found it to be very beneficial. They suggested that for every 3-4 months this kind of education program should be conducted for various diseases. They emphasized that mainly medication related detailed information should be provided to them by the pharmacist which will help them in better understanding and implementing the information into their practices to achieve maximum benefits and reduce on suffering and health expenditure.

They reported that since doctors are very busy professionals they are not in position to give them detailed information and spend quality time in education them. Also in case of any clarification they need on their illness or medications they get very objective information from prescribing doctors. They realized that Pharmacist is an easily accessible person who can definitely help them with providing very good and important information on medications prescribed to them.

They recommended to conduct such programs on holidays or Sundays so that they can surely attend them and maximum people will be able to participate.

In this study it was found that maximum patients and their caretakers were unaware about the hypertension and its management. This is also confirmed by similar studies which concluded that the majority of our hypertensive patients still have a poor knowledge of their disease with a significant negative impact on compliance with medications. No doubt, there is a need to invent more effective education strategies directed towards the public in general and the patients in particular.¹³

4. 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 was a significant increase in the knowledge of the study population after pharmacist mediated counseling in various aspects of hypertension disease. At the end of the study the blood pressure was found to be controlled in many of the patients whom education was provided. The compliance was found to be increased in the patients after the counseling sessions. This confirms knowledge caters positive attitude and leads to good practices which provides better health outcomes and benefits to patients.

This study also concluded that pharmacist involvement or need is very important in chronic disease management like diabetes mellitus, cardiovascular diseases, asthma etc. Such type of educational programs for the patient and their caretakers should be conducted continuously with periodic follow ups so that this public awareness will lead to better perception of patient about their disease management and help them in practicing necessary aspects with better compliance which will give them positive clinical outcome. This will also reduce the healthcare related unnecessary expenses.

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