Research Article

THE IMPACT OF PHARMACIST INTERVENTIONS ON QUALITY OF LIFE IN PATIENTS WITH HYPERTENSION

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Received on: 12-11-2010; **Finalized on:** 20-12-2010.

ABSTRACT

Hypertension is a common chronic health condition and the major objective of its treatment is to reduce the morbidity and mortality. Despite the effectiveness of antihypertensive treatment, high blood pressure is rarely controlled and it can lead to a huge adverse impact on quality of life. Pharmacists, being active members of the healthcare team can provide interventions in the management of hypertensive patients to achieve definite outcomes that improve patient's quality of life. The study aimed at evaluating the effect of Pharmacist's interventions on blood pressure and quality of life of hypertensive patients. A cross sectional descriptive comparative study was carried out for a period of 7 months in a 600 bedded multi-specialty tertiary care teaching hospital. The study subjects were post discharge hypertensive patients from the general medicine department. Patients served as their own control. All patients received 6 months interventions from a pharmacist. Blood pressure and quality of life measured before implementation of pharmacist's interventions and at the end served as main outcome measures. The RAND 36-Item Health Survey (Version 1.0) was used to assess quality of life. Forty seven patients completed the study, 29.8% of whom were males and 70.2% were females. The mean age of patients was 55.85 ± 10.15 years. Mean reductions were significant (P Value≤0.05) after pharmacist's interventions for systolic BP (17.36±1.676 mmHg) and diastolic BP (9.66±1.007 mmHg). After 6 months interventions, statistically significant improvement (P Value≤0.05) was found in all RAND 36 domains. It was concluded that pharmacist's interventions is effective in reducing systolic BP and diastolic BP and improving quality of life of hypertensive patients.

Keywords: Hypertension, Pharmacist interventions, quality of life, blood pressure.

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 affects nearly 26 per cent of the adult population worldwide. By 2025 it is projected that 29% of the world's population (over 1.56 billion adults) will have hypertension[1]. Appropriate treatment of hypertension significantly reduces the cardiovascular mortality and morbidity[2, 3]. Unfortunately, majority of the patients on antihypertensive medication fail to achieve their recommended target BP and it can lead to a huge adverse impact on quality of life[4]. In recent years there has been an increased interest in incorporating health-related quality of life measures into clinical practice. Pharmacists, being active members of the healthcare team can use these instruments in their practices to provide better patient care.

The aim of measuring quality of life is to provide information about well being of population and it has been a fundamental research topic in health, as its results are important to assess the effectiveness of health care. Quality of-life assessment measures changes in physical, functional, mental, and social health in order to evaluate the human and financial costs and benefits of new programs and interventions[5]. QOL is defined by the World Health Organization as "an individual's perception of his/her position in life, in the context of the culture and value systems in which he/she lives and in relation to his/her goals, expectations, standards and concerns[6].

In a recent population based study, hypertensive individuals were found to have lower health status compared with individuals free from hypertension. Co-morbidity with other diseases associated with hypertension may influence how persons with hypertension rate their QOL[7]. Concurrently with the benefits for hypertensive patients who are adequately treated, antihypertensive medication may produce adverse effects which affect the pleasure of living [8]. Factors that may affect QOL of hypertensive are blood pressure, adverse effects of drugs used to treat hypertension, subsequent complications, labeling effect, or beliefs and attitudes about illness and treatment [9-12].

Poor medication adherence and lack of knowledge and awareness on hypertension are the major reasons for poor BP control which is largely related to deterioration in a patient's quality of life[8]. Therefore hypertensive patients require more knowledge on the management of their disease to achieve their recommended target BP and to improve their quality of life. In the chain of healthcare providers, the pharmacist are in a key position to apply interventions to improve knowledge, awareness, adherence, and hence the therapeutic outcomes and quality of life in patients with hypertension. Although the

Pharmacist's interventions play a major role in the management of hypertension, studies on pharmacist's interventions to improve quality of life of patients with hypertension have been rarely reported. Therefore, the purpose of this study is to evaluate the effect of Pharmacist's interventions to improve outcomes and quality of life in discharged patients with hypertension in a multi- specialty tertiary care teaching hospital.

MATERIALS AND METHODS

A Cross sectional descriptive comparative study was conducted for a period of 7 months in the general medicine department of a 600 bedded multi-specialty tertiary care teaching hospital. Patients served as their own control. Patients diagnosed to have hypertension for more than 6 months with systolic blood pressure of ≥140mm Hg and /or diastolic blood pressure of ≥ 90mmHg, who have been discharged on antihypertensive medications and who were willing to participate were included in this study. Patients with cognitive, psychiatric, hearing or speech problems and children below the age of 12 years were excluded.

The ethics committee of the institution approved the study. All hypertensive patients who satisfied the inclusion criteria and discharged from the general medicine department invited to participate in the study. Interested patients were screened for study inclusion. Forty seven patients were included in the pre and post intervention study. All patients provided written informed consent. At baseline, all patients received usual care and after obtaining patient consent, patient's clinical and demographic details were collected by using patient's medical records and patient interview. All informations obtained were recorded in a standard data collection form. BP measurements were performed on the right upper limb of patient in sitting position with the help of a doctor. Before implementation of pharmacist's interventions quality of life of patient was assessed using the RAND 36-Item Health Survey (version 1.0) questionnaire. This questionnaire is comprised of 36 items that assess eight health concepts: physical functioning, bodily pain, role limitations due to physical health problems, role limitations due to personal or emotional problems, emotional well-being, social functioning, energy/fatigue, and general health perceptions. It also includes a single item that provides an indication of perceived change in health.

After baseline data collection a Pharmacist delivered interventions. At first, all subjects were received a face to face counseling lasting from 30 to 45 minutes and patients were educated on hypertension, its treatment, and lifestyle modifications. The subjects were also provided with medication schedule reminder in order to improve their medication taking behavior. The subjects were followed up and regular interview and counseling were conducted by the pharmacist through telephone calls and the reports were noted down. The follow up BP measurements were evaluated by the Pharmacist by telephone. The frequent telephone reminder from the pharmacist also helped the patients to reduce medication non-adherence. After the 6 months interventions quality of life of patients were reassessed using the RAND 36-Item Health Survey (version 1.0). A paired t -test was used for the comparison of blood pressure and quality of life before interventions and after interventions. A significance level of ≤ .05 was adopted for all statistical tests. All analyses used SPSS version 13.

RESULTS AND DISCUSSION

Hypertensive patients require better patient care to achieve adequate BP control and to improve quality of life. In the healthcare system , pharmacists are in an ideal position to apply interventions for the purpose of achieving definite outcomes that improve the patients' quality of life.This study illustrates how ppharmacist's interventions improve outcomes and quality of life in discharged patients with hypertension.

A total number of 50 eligible consenting patients were participated in the study. 3 patients were died during the entire study period and 47 patients completed the pre and post interventions study. The mean age of the group under the study was 55.85 years (SD= 10.15) .In the study group 29.8% patients were males and 70.2% were females. The mean duration of hypertension was 5.47 ± 4.822 years. Out of 47 patients 29 (61.7%) had co-morbidity. Patient characteristics are shown in table 1.

Table 1: Patient characteristics

Characteristics	Parameters
Age (years) Mean ± SD	55.85 ± 10.15
Gender (%) Female Male	 29.8% 70.2%
Social habits (%) Smoker Alcoholic None	 17% 10.6% 78.72%
Family history of hypertension (%) Patients with Family history Patients without Family history	 66% 34%
Duration of hypertension (years) Mean ± SD	5.47 ± 4.822
Co-morbid Diseases (%) Diabetes Mellitus Dyslipidemia Renal failure COPD	 57.44% 8.5% 4.26% 4.26%
Education (%) Illiterate Literate	 10.64% 89.36%

During the study period 72 antihypertensive medications were prescribed to the study subjects. In this study, most of the study subjects were treated with a single drug (57.4%) followed by combination therapy (42.6%) with two drug (29.8%) and three drug (12.8%). The prescribed antihypertensive medication consisted of 41.67% Calcium-Channel Blocker (CCB), 31.94% Beta-Blockers (BB), 5.56%Diuretics, 6.94% Angiotensin Converting Enzyme Inhibitors (ACEI), 12.5% Angiotensin II receptor Blockers (ARB) and 1.39%Aldosterone antagonist.

In this study the pharmacist's interventions resulted in significant (p≤ .05) reduction in systolic BP and diastolic BP (Table.2).At baseline, the mean systolic BP was 145.4 (S.D= 9.47) and diastolic BP was 89.83 (S.D = 6.03). After 6 months interventions, the mean systolic BP was lowered by 17.36(S.D= 1.676) mm Hg and the mean diastolic BP was lowered by 9.66(S.D= 1.007) mm Hg. In a similar study by Carter BL et al,[14] at 6 months, the mean systolic BP was lowered by 20.7 mm Hg and the mean diastolic BP was lowered by9.7 mm Hg.. The study results revealed that pharmacist's interventions resulted in significant reduction in SBP and DBP as in other studies[15-17].

Table 2: Changes in Blood Pressure (BP) of patients before and after the interventions

BP	Before pharmacist's interventions	After pharmacist's interventions	P Value
diastolic BP	145.4 ± 9.47	128.04 ±7.796	.000
Systolic BP	89.83 ± 6.03	80.17 ± 5.019	.000

Table 3: QOL scores before and after the interventions assessed by the Rand -36 health survey

Domains	Before Interventions (mean ± SD)	After Interventions (mean ± SD)	P Value
Physical Functioning (PF)	54.22± 39.734	65.75±33.69	.000
Role limitations due to physical health (RP)	19.05±39.31	91.49±28.21	.000
Role limitations due to emotional problems (RE)	38.57±48.86	93.62±24.71	.000
Energy/ fatigue (E)	46.85±32.88	65.85±23.11	.000
Emotional wellbeing (EW)	55.05±33.63	72.25±23.71	.000
Social functioning (SF)	50.55±43.58	79.26±26.72	.000
Pain (P)	41.29±35.04	78.83±23.6	.000
General health (GH)	47.02±34.51	55.58±29.85	.000

The RAND 36-Item Health Survey (Version 1.0) scores of patients before and after interventions were compared using the paired t test and the report showed that statistically significant difference (p≤ .05) was found in scores of all domains of Rand -36 health survey after interventions. QOL scores before and after the interventions are shown in table 3.

At baseline of this study, all patients received usual care and the Rand -36 health survey showed that there was a trend for poor QOL in all patients. At the end of the study, statistically significant improvement were found in RAND 36 domains of physical functioning, bodily pain, role limitations due to physical health problems, role limitations due to personal or emotional problems, emotional well-being, social functioning, energy/fatigue, and general health perceptions after 6 months interventions.

One of the important aspects of using QOL instruments in intervention studies is the measurement properties of the questionnaire used. In case of the Rand -36, patients are not shown their first visit's scores at the second data collection visit. However, showing the patients their previous scores would have violated the structured method by which the Rand -36 is used. This study demonstrated that pharmacist's interventions achieved a greater improvement in the quality of life of patients. The result of a previous study by Lyra Jr DP et al [55] also supports these findings.

This study has several strengths; the interventions included strong educational component with baseline individual face to face counseling and repeat telephone counseling by the pharmacist. This helped patient's to develop better knowledge of hypertension and determination in preventing the hypertension. Medication schedule reminder and telephone calls from the pharmacist served to remind patients to take their medications. Despite the strengths, pharmacist's lack of experience in implementing interventions and applying the Rand -36 might have influenced in results.

CONCLUSION

This study demonstrates that pharmacist's interventions achieved significant reduction in mean systolic BP and diastolic BP and improvement in quality of life of hypertensive patients. Based on these findings, this study concludes that pharmacist's interventions can be effective in reducing BP and improving quality of life of hypertensive patients. Additional research should be

conducted to evaluate the efficacy of pharmacist's interventions and the extent to which it is beneficial for the management of hypertension.

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