A Description of Medication Decision-Making, Dispensing, and Utilization for Hypertensive Patients in Nishtar Hospital Multan, Pakistan

Hafiz Muhammad Khawar Saeed, Naveera Nasar, Sonia Batool, Rabia Ghauri, and Aqeela Rauf
Faculty of Pharmacy, Bahaudin Zakariya University, Multan, Pakistan

Acknowledgement: Authors are thankful to Mr. Fawad Rasool lecturer of Bahaudin Zakariya University, Multan for his technical and moral support.
Key Words: rational drug use; hypertension; Nishtar Hospital Multan, Pakistan

Abstract
Hypertension is a worldwide health problem affecting developed and developing countries, and Pakistan is no exception. Nishtar Hospital Multan is categorized as one of the biggest hospitals in South Asia. The objective for this study was to describe medication decision-making, dispensing, and utilization for patients diagnosed with hypertension at this patient care facility. The study was conducted by 5 trained pharmacists working in collaboration with prescribers who met with study participants when they visited the hospital. All interview questions were asked in Urdu during the hospital visit. Data were summarized using descriptive statistics. A total of 301 patients who visited the hospital agreed to participate in the study. The findings showed that prescribers spend little time with patients and rarely follow guidelines for decision-making. Regarding the dispensing of medications for the treatment of hypertension, none of the dispensing was completed by a pharmacist and none of the patients received counseling about medications at the time of dispensing. Most patients reportedly do not take their medication as prescribed. Regarding outcomes, 20% of the patients had pre-hypertension, 47% stage 1 hypertension, and 33% stage 2 hypertension. Great improvements are possible in the treatment of hypertension at the hospital we studied through application of standard treatment guidelines, patient education, and adjustments to work system processes so that alignment of provider's skills with opportunities in improving the patient care process can be achieved.

Introduction

The World Health Organization (WHO) has defined the term rational drug use as "where patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, and at the lowest cost to them and their community" [1]. Regarding the rational use of drugs, WHO mentions 12 key interventions to encourage the rational use of drugs [1]. These key points are: (1) establishment of a multidisciplinary national body to coordinate policies on medicine use, (2) use of clinical guidelines, (3) development and use of a national essential medicines list, (4) establishment of drug and therapeutics committees in districts and hospitals, (5) inclusion of problem-based pharmacotherapy training in undergraduate curricula, (6) continuing in-service medical education as a licensure requirement, (7) supervision, audit and feedback, (8) use of independent information on medicines, (9) public education about medicines, (10) avoidance of perverse financial incentives, (11) use of appropriate and enforced regulation, and (12) sufficient government expenditure to ensure availability of medicines and staff.

Corresponding author: Hafiz Muhammad Khawar Saeed
Faculty of Pharmacy, Bahaudin Zakariya University,
Multan, Pakistan; Saeed.khawar@gmail..com, 03216334476

Hypertension is a worldwide health problem affecting developed and developing countries, and Pakistan is no exception [2-13]. Hypertension is associated with a number of problems and is the most common risk factor for cardiovascular disease in all population groups in Pakistan. Pakistan has the world's sixth largest population (165 million in 2007) which is continuously growing at about 1.83% every year. We know from our national heath surveys that 33% of the Pakistani population above the age of 45 has hypertension [5]. According to a study conducted in 2009 in Nishtar Hospital Multan Pakistan, Institute of cardiology Multan Pakistan and Sheikh Zayed hospital Rahim Yar Khan Pakistan, 70% of patients with heart disease were males and 45% of patients were diagnosed with hypertension [5, 13].

Nishtar Hospital Multan is categorized as one of the biggest hospitals in South Asia. The objective for this study was to describe medication decision-making, dispensing, and utilization for patients diagnosed with hypertension at this patient care facility. This prospective study of 3 months ranging from the month of June 2011 to September 2011 was conducted in Nishtar Hospital Multan Pakistan.

Methods

Ethical Approval and Informed Consent

Patients who committed to participate in the study were explained the nature as well as objectives lying behind the study and their informed consent formally obtained. For patients who were underage, informed consent was obtained from their parents/guardians.

Data Collection

The study was conducted by 5 trained pharmacists working in collaboration with prescribers who met with study participants when they visited the hospital. All interview questions were asked in Urdu during the hospital visit.

The Questionnaire

The overall questionnaire consisted of 34 questions and was completed by the trained pharmacist in collaboration with feedback from patients and physicians. Questions that were used for the preparation of this report included demographic data about each patient's age, gender, body mass index, weight, location of residence, occupation, and socioeconomic class. Other information was collected using the questionnaire and included information about:

- Length of time prescribers spent with patients during the visit
- Prescriber use of generic name of medications during prescribing
- Prescriber use of JNC7 guidelines for treatment of hypertension
- Prescriber awareness of the hospital's drug formulary
- Prescriber agreement that a standard treatment protocol should be followed for treatment of hypertension
- Type of Professional (pharmacist or nurse) who dispensed the hypertension medication to the patient
- Patient receipt of counseling from the dispenser at time of hypertension medication dispensing
- Patient self-reported adherence to hypertension medication as prescribed
- Blood pressure status at time of visit
- Pulse rate at time of visit

Data Analysis

Data were summarized using descriptive statistics.

Results

A total of 301 patients who visited the hospital agreed to participate in the study. Table 1 summarizes the demographic characteristics of the study participants. Fifty-four percent of the participants were age 50 or older and 57% of the participants were female. There was variation amongst participants in terms of body mass index, and weight. Socioeconomic class for the majority of study participants was described as "Poor."

The findings showed that prescribers almost always spent less than 10 minutes with each patient (Table 2). Prescribers rarely (<1%) used generic names of medications when prescribing, rarely (3%) followed guidelines for decision-making, and only 2% reported knowing that the hospital had a drug formulary for making prescribing decisions for medications to use in treating hypertension. When asked about if the hospital should use a standard treatment protocol for prescribers to follow when making prescribing decisions for treatment of hypertension, 95% reported that they agreed.

Regarding the dispensing of medications for the treatment of hypertension, none of the dispensing was completed by a pharmacist and none of the patients received counseling about medications at the time of dispensing.

Regarding self-reported adherence to their medications for treatment of hypertension, 54% of patients reported that they do not take the medication as prescribed. Regarding outcomes, 20% of the patients had pre-hypertension, 47% stage 1 hypertension, and 33% stage 2 hypertension. Also, 71% of the patients had a pulse rate 80 beats per minute or higher during their hospital visit.

Discussion

We propose that there is great opportunity for improvement in the treatment of patients with hypertension at Nishtar Hospital Multan, Pakistan. The majority of patients in our study were age 50 and older. With the advancement in age, patients may be more inclined to forget their dosing schedule which creates grave effects on the health of the patient. In the absence of any care taker, the condition of the patient may become grimmer. Also an increase in dosage frequency and number of drugs to be taken per day may cause problems. A patient's geographic location of residence, occupation, and socioeconomic class creates an impact of the treatment of hypertension. People residing in urban areas may run short of pure and low caloric food and many rely on junk and high caloric food. Weight gain and physical inactivity are important considerations in the treatment of hypertension. More than 70% of all hypertensive patients (85% in rural areas) in Pakistan are not even aware of their disease [5, 13]. This creates geographic location challenges. With respect to socioeconomic class and hypertension, both

the rich and poor people are equally affected. However, the dilemma associated with poor people is that most of them are not aware of having hypertension and they get aware of suffering from hypertension on having an attack of angina pectoris, or stroke which on most of the occasions prove fatal to life [5, 13].

The findings also showed that little time was spent with patients during the prescribing process, and no consultation was given patients regarding medication use. Furthermore, prescribers and dispensers of medications for treatment of hypertension did not utilize any protocols for prescribing and dispensing of these products. We propose that there is an opportunity for improving the prescribing and dispensing of medications for hypertension through the use and application of generic drug use, prescribing guidelines, formularies, pharmacist dispensing of medications, and appropriate patient consultation and follow-up by pharmacists.

Heavy work-loads that already exist, lack of awareness by prescribers and dispensers about guidelines already in place, the lack of clear work system processes for prescribing and dispensing medications, and lack of alignment of providers skills with opportunities in improving the patient care process area challenges that need to be overcome.

Conclusions and Recommendations

We suggest that great improvements are possible in the treatment of hypertension at the hospital we studied. We offer a few recommendations for further discussion and consideration:

- Patient care providers should take careful note of patients' perceptions and goals, any adverse effects being experienced, drug interactions, any past medications that were used for hypertension, and a complete detail of patients' medication use.
- Apart from pharmacological treatment, non-pharmacological treatments are equally imperative in the suppression of hypertension. Those non pharmacological treatments for suppression of hypertension include reduced salt intake, low caloric and protein diet and physical activity of an appropriate level.
- Patient education plays an important role in promoting rational use of drugs. One way to educate patients about the rational use of drugs is through individual communication during the contact between providers and patients.
- Application of standard treatment guidelines should be followed.
- Work system processes for prescribing and dispensing medications should be changed so that alignment of provider's skills with opportunities in improving the patient care process can be achieved.

References

1. Rational drug use: prescribing, dispensing, counseling and adherence in ART programs; revised 06/2011; available at http://www.whoint/hiv/amds/capacity/ken_msh_rational .pdf
2. Carretero, Oscar A., and Suzanne Oparil. "Essential hypertension part I: definition and etiology." *Circulation* 101.3 (2000): 329-335.
3. Chobanian, Aram V., George L. Bakris, Henry R. Black, William C. Cushman, Lee A. Green, Joseph L. Izzo, Daniel W. Jones et al. "Seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure." *Hypertension* 42, no. 6 (2003): 1206-1252.
4. Kearney, Patricia M., Megan Whelton, Kristi Reynolds, Paul Muntner, Paul K. Whelton, and Jiang He. "Global burden of hypertension: analysis of worldwide data." *The Lancet* 365, no. 9455 (2005): 217-223.
5. Jafar, Tazeen H., Andrew S. Levey, Fahim H. Jafary, Franklin White, Asma Gul, Mohammad H. Rahbar, Abdul Q. Khan, Andrew Hattersley, Christopher H. Schmid, and Nish Chaturvedi. "Ethnic subgroup differences in hypertension in Pakistan." *Journal of hypertension* 21, no. 5 (2003): 905-912.
6. Inkster, M. E., P. T. Donnan, T. M. MacDonald, F. M. Sullivan, and T. Fahey. "Adherence to antihypertensive medication and association with patient and practice factors." *Journal of human hypertension* 20, no. 4 (2006): 295-297.
7. Osterberg, Lars, and Terrence Blaschke. "Adherence to medication." *New England Journal of Medicine* 353.5 (2005): 487-497.
8. Youssef, R. M., and I. I. Moubarak. "Patterns and determinants of treatment compliance among hypertensive patients." *East Mediterr Health J* 8, no. 4-5 (2002): 579-92.
9. Cheng, Judy WM, Michelle M. Kalis, and Stanley Feifer. "Patient-Reported Adherence to Guidelines of the Sixth Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure."*Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy* 21, no. 7 (2001): 828-841.

10. Yiannakopoulou, Eugenia Ch, John S. Papadopulos, Dennis V. Cokkinos, and Theodoros D. Mountokalakis. "Adherence to antihypertensive treatment: a critical factor for blood pressure control." *European Journal of Cardiovascular Prevention & Rehabilitation* 12, no. 3 (2005): 243-249.
11. Monane, Mark, Rhonda L. Bohn, Jerry H. Gurwitz, Robert J. Glynn, Raisa Levin, and Jerry Avorn. "The Effects of Initial Drug Choice and Comorbidity on Antihypertensive Therapy Compliance: Results from a Population-Based Study in the Elderly." *American Journal of Hypertension*10, no. 7 (1997): 697-704.
12. Ghaffar, Abdul, K. Srinath Reddy, and Monica Singhi. "Burden of non-communicable diseases in South Asia." *BMJ: British Medical Journal* 328, no. 7443 (2004): 807.
13. Jafar, Tazeen H., Fahim H. Jafary, Saleem Jessani, and Nish Chaturvedi. "Heart disease epidemic in Pakistan: women and men at equal risk. *"American heart journal* 150, no. 2 (2005): 221-226.

Table 1: Descriptive Summary for Study Participants (N = 301)

Variable	Frequency	Percent
Age		
Under 30 years	19	6%
30 to 49 years	120	40%
50 to 59 years	86	29%
60 years or older	76	25%
Gender		
Male	130	43%
Female	171	57%
Body Mass Index		
Less than 18.5	30	10%
18.5 to 24.9	166	55%
25.0 to 29.9	80	27%
30.0 or more	25	8%
Weight (in kilograms)		
Under 60 Kg	108	36%
60 to 70 Kg	151	50%
More than 70 Kg	42	14%
Location of Residence (city name)		
Multan	125	42%
Khanewal	30	10%
Liyyah	25	8%
Chowkazam	24	8%
D.G. Khan	24	8%
Rahim Yar Khan	20	7%
Shujabad	5	2%
Others	48	16%
Occupation		
Homemaker	130	43%
Laborer	46	15%
None	42	14%
Worker	33	11%
Agriculture	18	6%
Business	7	2%
Gardener	4	1%
Other	21	7%
Socioeconomic Class		
Rich	8	3%
Ordinary	110	37%
Poor	183	61%

Table 2: Descriptive Summary for Clinic Visit (N = 301)

Variable	Frequency	Percent
Length of Time Prescribers Spent with Patients		
Less than 10 minutes	295	98%
10 minutes or more	6	2%
Proportion of Prescribers who Prescribe Using Generic Name of Medications	1	<1%
Proportion of Prescribers who Followed JNC7 Guidelines for Treatment of Hypertension	10	3%
Proportion of Prescribers Who were Aware of Drug Formulary	7	2%
Proportion of Prescribers Who Agreed that a Standard Treatment Protocol should be Followed for Treatment of Hypertension	286	95%
Professional who served as Dispenser of Hypertension Medication		
Nurse	301	100%
Pharmacist	0	0%
Proportion of Patients who Received Counseling about Medications at Time of Dispensing	0	0%
Proportion of Patients who Reported they Do Not Take the Medication as Prescribed	164	54%
Blood Pressure Status		
Prehypertension (SBP 130-139 or DBP 85-89)	59	20%
Stage 1 Hypertension (SBP 140-159 or DBP 90-99)	142	47%
Stage 2 Hypertension (SBP 160+ or DBP 100+)	100	33%
Pulse Rate (beats per minute)		
Less than 80	87	29%
80 to 109	207	69%
110 or higher	7	2%