

Barriers to Optimal Blood Pressure Control Among Adult Hypertensive Patients: Assessment of Life Style and Compliance to Treatment

Noor ul Islam¹, Imran Waheed Ahmad², Abdullah³, Amanullah Khan⁴, Muhammad Ilyas⁵, Tariq Rahim⁶, Shafiq Ahmad⁷

¹District Headquarter Hospital, Bajaur

²Institute of Nursing Sciences, Khyber Medical University, Peshawar, Pakistan

³Saidu Teaching Hospital Swat.

⁴Hayatabad Medical Complex Peshawar.

^{5,6,7}Lady Reading Hospital Peshawar.

*noorsalarzai5033@gmail.com

Abstract

Background:

Hypertension (HTN) is one of the major public health problems which cause cardiovascular morbidities and mortalities globally. Several evidences on benefits of controlled HTN as well as many other guidelines on detection and management of HTN are present, but still uncontrolled and untreated HTN largely exists in population.

Methods:

A descriptive cross sectional study was carried out at Hayatabad Medical Complex (HMC) Peshawar Pakistan. The study selected 377 participants by non probability convenient sampling technique to find out barrier to optimal blood control among adult patients visiting to HMC. Adopted questionnaire was used for data collection. Analysis was carried through SPSS version 22.0.

Results:

The result showed that majority (62%) staff members had knowledge about bio-medical waste. The remaining staff had very basic knowledge about bio-medical waste.

Conclusions:

Different barriers to optimal hypertension control were identified which include inadequate knowledge of the consequences of poor HTN control, poor adherence to medication, poor diet management and unhealthy life style.

Keywords:

Hypertension, Optimal Control, Life Style, Medication Compliance, Tertiary Care Hospital.

Introduction:

Hypertension (HTN) is one of the major public health problems which cause cardiovascular morbidities and mortalities globally¹. HTN for long time can be a major risk factor for macrovascular and microvascular problems such as coronary artery disease (CAD), stroke, heart failure, vision loss, chronic kidney disease (CKD), and dementia². Several evidences on benefits of controlling blood pressure and several other guidelines on detection and management of HTN are present, but still under implemented³. Several factors are involved in poor handling and suboptimal control of HTN among patients. Many patients are reluctant to treatment and many others are having uncontrolled HTN despite of following treatment. Lack of physical activities, balance diet, poor medication compliance, and reluctance to change unhealthy behaviors is other obstacles in optimal control of blood pressure⁴. An Indian study reported (2017) that one billion adults or almost 22% of the population of the world have hypertension⁵. HTN is common in high, medium, and low income countries⁶. According to "The National Survey of Pakistan" it is estimated that HTN affects 18% of adults and 33% of adults above 45 years of age⁷. Another study from Pakistan reported (2014) that 25.6% of the adults having 70.6% male and 29.4% female are hypertensive⁸.

According to the 7th report of the Joint National Committee on detection, prevention and evaluation of hypertension, only 23.4% know the consequences of poor control of HTN⁹. A cross sectional study from Pakistan reported (2015) that 25.6% of adults found hypertensive and the result of the study shows the prevalence of hypertension high among those adults having positive association with family history, poor diet, inactivity, and sedentary life style⁸.

Predisposing factors such as little knowledge about HTN, salt intake, non-compliance to treatment, less physical activities and financial constraints are prominent¹⁰. Poor quality of optimal blood pressure control gives poor results for the patients¹⁰. These risk factors influencing optimal hypertension care are not known yet¹¹. This situation can lead to needless casualties or development of CVD, hence keeping an additional burden on health care system⁷. Pakistan is a developing country and having high prevalence of communicable and non-communicable diseases. So this cross-sectional study is formulated to identify and analyze various barriers to optimal hypertension control among adult patients visiting Hayatabad Medical Complex Peshawar.

Methods: This cross sectional study was carried out in Hayatabad Medical Complex (HMC); a tertiary care hospital having a well-equipped cardiac department consists of male, female cardiac wards and Cardiac Intensive Care Unit (CICU) in Peshawar Pakistan. Participants were recruited from cardiology department by non-probability Convenience sampling technique. All hypertensive patients who were ill for more than three years, having age more than 18 years and were admitted in cardiology ward HMC were included. Too ill participants and not willing to participate in the study were excluded. Sample size $n=377$ was calculated by Rao-soft calculator. The tool used for data collection was an adopted questionnaire consists of four parts i.e. (i) Demographic data including sex (male and female), age in years, marital

status, employment status and educational status which were self-reported by the responders (ii) Life style changes which are further subdivided in to three sub parts including physical activity, diet and smoking (iii) Medication compliance and (iv) Morisky scale. The duration of the study was four months.

Results:

Variable	Categories	Frequencies	Percentag
Gender	Male	206	54.64
	Female	101	45.36
Marital status	Married	362	96.02
	Unmarried	15	3.98
Religion	Muslim	329	87.30
	Non-Muslim	48	12.70
Ethnicity	Pathan	287	76.10
	Other	90	23.90
Employment status	Employed	106	28.12
	Unemployed	271	71.88
Educational status	Literate	125	33.16
	Illiterate	252	66.84
Today's B.P	Normal	23	6.10
	Mild	72	19.10
	Moderate	195	51.72
	Severe	87	23.08

Table 1: Demographic Variables of Participants

The mean age of the participants was calculated which was 55.28 ± 10.09 in a sample of 377. The male participants in the study were 54.64 % while the female participants were 45.36 % followed by a marital status of 96.02 % married and 3.98 % of unmarried participants. The participants were from diverse cultures and

languages, aged between 26 to 85 years. In addition, the illiterate participants were (66.84%) and unemployed were (71.88%) respectively.

(A) Physical activity:			
By which means do you come to hospital			
By Foot 41(10.9)	Bicycle 27(7.1)	Public transport 237(62.9)	Self-transport 72(19.1)
If you come by foot, how long does it take you to arrive to hospital?			
Less than 30 minutes 58(15.3)	Less than one hour 205(54.3)	More than one hour 114(30.4)	
Do you participate in any sort of physical activities?			
Yes 262(69.3)		No 115(30.7)	
(B) Diet:			
Have you limited your salt consumption?			
All the times 200(52.9)	Some times 119(31.5)	Already doing so for other reasons 9(2.4)	Never did so 49(13.2)
Did you limit your fat consumption?			
All the times 175(46.3)	Some times 143(37.8)	Already doing so for other reasons 16(4.3)	Never did so 43(11.6)
Did you made any dietary changes?			
All the times 138(36.5)	Some times 173(45.8)	Already doing so for other reasons 24(6.3)	Never did so 42(11.4)
(C)Smoking:			
Have you ever smoked?			
Yes 129(34.1)		No 248(65.9)	
Are you currently smoking?			
Yes 50(13.2)		No 327(86.8)	

Table 2: Life Style Changes:

Note: Value inside parenthesis denoted %age while the values outside parenthesis show 69.3 % participants used to take part in some sort of physical activities and 52.9% had restricted salt consumption in their diets. In addition, 65.9 % of the participants never smoked followed by 86.8 % who are not currently smoking. 59.7% participants were not asked by their physician about the side effects of hypertensive medications. Furthermore 51.7%) had no access to BP apparatus for checking BP reading regularly. In addition, the study showed lack of knowledge of participants regarding their disease (63.4%) while 66.6 % of the participants did not know about the harmful effects of high blood pressure.

Yes	No
Did you take all medication you were prescribed on your last visit?	
266(70.6)	248(65.9)
Did your doctor ask if you are taking medication correctly?	
272(72.1)	105(27.9)
Did your doctor ask if you have any side effect?	
152(40.3)	226(59.7)
Have you experience any side effect?	
63(16.7)	315(83.3)
Did you ask your physician how much your medication will cost?	
177(46.9)	200(53.1)
Did you get feedback about your BP reading today?	
182(48.3)	195(51.7)
Do you have self-monitoring BP machine?	
133(35.3)	244(64.7)
Do you understand why taking medication is important?	
266(70.6)	111(29.4)
Do you have caring family members?	
310(82.2)	67(17.8)
Do you have enough knowledge about your disease?	
138(36.6)	239(63.4)
Do you know about harmful effects of high blood pressure?	
126(33.4)	251(66.6)
Do you know HTN is a chronic lifelong incurable but controllable disease	
214(56.8)	163(43.2)

Table 3: Medication Compliance:

Note: Values inside parenthesis denote %age while the values outside parenthesis denote "f"
This study showed (59.7%) participants are not asked by their physician about the side effects of hypertensive medications. Furthermore (51.7%) participants had no access to BP apparatus for reading their BP regularly. In addition, the study showed lack of knowledge of participants regarding their disease (63.4%) while 66.6 % of the participants were not aware about the harmful effects of high blood pressure.

Yes	No
Do you sometimes forget to take your medicine?	
273(72.4)	104(27.6)
Have you ever stopped taking your medicines without telling your doctor because you felt worse when you took it?	
191(50.7)	186(49.3)

Yes	No
When you travel or leave home, do you sometime forget to take your medicines?	
230(61)	147(39)
Did you take all your medicines yesterday?	
280(74.3)	97(25.7)
When you feel like your symptoms are under control, do you some time stop taking your medicines?	
177(47)	200(53)
Taking medicines every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan?	
206(54.6)	171(45.4)

Table 4: Morisky Scale

By morisky scale 72.4% participants answered that they often forgot to take the medication. 50.7% quit medications without doctor consultation. Furthermore, they also don't care of taking their medication while travelling or leaving the home, for long time (61%). Most of the patients (54.65%) also felt hassled about sticking to their treatment plan because for them its inconvenience to take medicines on daily basis.

Discussion:

Our findings show that some participants had salt and fat restrictions but some participants had never salt or fat restrictions throughout. Since salts and fats are directly related to HTN, still most of the participants had HTN despite of salts and fats restrictions. A study conducted by Dixon W. Wilde et al shows an increase in plasma fatty acid levels following fat intake, which had led to hypertension¹². Similarly, (65.9%) participants never smoked and (86.8%) participants were not smoking at the time of data collection, but still they were hypertensive. It shows that smoking is not directly related to HTN. 63.4% participants knew their disease, while 66.6% of participants were not aware about the side effects of high blood pressure. A study reported that lack of knowledge about HTN has a major role in the etiology of HTN¹³. Another study shows that basic knowledge of hypertension is low among illiterate¹⁴. Moreover, the poor adherence of

antihypertensive drugs among the participants in this study is demonstrated by Morisky scale. By this scale, 49.3 % of participants felt worse while taking drugs and stop taking medication without consultation with their concerned physicians, while 53 % of the participants stop taking their medicines when they feel symptoms of HTN are under control, and 35.71 % participants often forget to take antihypertensive medication which leads to HTN. A study on poor adherence to drugs shows the main cause of non-adherence is due to lack of patient knowledge of the importance of antihypertensive drugs in the control of HTN¹⁵. Another study shows 41.5% of patients have poor self-reported compliance with antihypertensive drugs at different levels, ranging from routinely missing to taking their medication on time to rarely taking their medication on a daily basis¹⁶. Vrijens B, Antoniou and S, Burnier M conducted a study shows that despite of improved awareness about HTN, but poor adherence to hypertensive therapy is still a global problem¹⁷. Global HTN disparities are vast and growing. Combined energies are immediately desirable to fight the evolving hypertension burden in low- and middle-income countries¹⁸⁻²⁰. The overall results show that this study is significant in terms of exploring the barriers optimal control of HTN, which need to be tackled to reduce or overcome the issue and its complications.

Conclusion:

Hypertension is one of the major public health issues and its optimal control could have significant impacts on patient's quality of life and reduction on hospital burden. Different barriers were seen which affect HTN control such as sedentary life styles, poor dietary management, and inadequate knowledge of the consequences of poor blood pressure control, forget to take antihypertensive medicines, stop taking antihypertensive medication without consultation, and poor medication compliance. Patients need to be educated properly about all barriers and its potential harms soon or later on

their lives. This study will create dominant contribution in optimal blood pressure control.

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