CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.3936715

Available online at: http://www.iajps.com *Research Article*

ASSESSMENT OF EFFECTIVITY OF ANTIHYPERTENSION MEDICATION AMONG PATIENTS SUFFERING FROM ONLY HYPERTENSION AND WITH OTHER CLINICAL CONDITIONS

[1]Dr Saira Abbas, [1]Dr Khansa Majid, [2]Dr Muhammad Abdur Rehman
[1]Khawaja Muhammad Safdar Medical College Sialkot
[2]Sheikh Zayed Hospital Rahim Yar Khan

Article Received: May 2020 **Accepted:** June2020 **Published:** July 2020

Abstract:
Objective: *Hypertension is very serious risk factor for the development of cardio-vascular and heart diseases in Sialkot, Pakistan. The evaluation of the effectiveness and safety of the anti-hypertension medication in different private hospitals is much significant. Significance arises due to the high incidence of hypertension in the multi-cultural region. This research work assessed the usage of Anti-hypertension medications among the patients present with hypertension alone or with some other clinical condition.*
Methodology: *This research work carried out on four hundred hypertension patients who were recruited randomly from different private hospitals of Sialkot to assess the effectiveness and safety of the anti-hypertension medication in this region. Diagnosis of hypertension alone or in combination with other clinical condition carried out in the patients. Patients from both genders were the participants of this research work. This research work included the patients from all the classes of society. The collection of the data carried out from the medical files of the patients, conducting interviewing with doctors, nurses or by taking interviews of patients in the duration of this research work.*
Results: *The findings of this research work showed that most of the patients were males (87.50%). There was association of some factors with hypertension as profession, age and gender. 82 % patients of hypertension were present with the history of hypertension in their family. We found no significant difference in diastolic BP between patients of both genders (average DBP; 79.0 Vs 82.90 mmHg correspondingly, P = 0.0760), but we found a significant difference in average SBP between both genders (average SBP 149.0 Vs 138.0 mmHg correspondingly, P= 0.0440). The stated adverse reactions of the medications in this research work breathe shortness, headache, edema, dizziness, vomiting, and problems of gastro-intestinal tract and cramps of muscle.*
Conclusion: *There are many factors which are accountable for the contribution of the rise in Blood Pressure; most important risk factors are the life style and history of the complication in family. Combination treatment has association with very high rate of occurrence of adverse reactions of drugs; enough to permit either reducing the amount of medications or change in the prescribed medication. There is requirement of more efforts from the patients and professionals to reduce the danger of uncontrolled hypertension in our region.*
KEYWORDS: *Hypertension, Myocardial Infarction, Professionals, Medication, Adverse, Drugs, Complications.*

Corresponding author:
Dr. Saira Abbas,
Khawaja Muhammad Safdar Medical College Sialkot

QR code

Please cite this article in press Saira Abbas et al, ***Assessment Of Effectivity Of Antihypertension Medication Among Patients Suffering From Only Hypertension And With Other Clinical Conditions.,*** *Indo Am. J. P. Sci, 2020; 07(07).*

INTRODUCTION:

Hypertension is most important factors for different cardiovascular and health diseases according to WHO (World Health Organization). This complication can cause various disorders of brain, kidneys, heart which results in stroke, inefficiency of renal function, MI (Myocardial Infarction) and heart failure [1]. In accordance with the findings of Stamler and Ruilope & Segura and European Society of Hypertension with collaboration of European Society of Cardiology, monitoring of the BP can decrease the various complications of heart particularly in the patients suffering from DM (Diabetes Mellitus) and inefficiency of renal function [2]. Published in MEDLAB Magazine in 2008, epidemiological research work on hypertension in Pakistan stated that survey conducted on more than eight thousand participants and the overall rate of incidence of hypertension was 33.10% in public.

This incidence rate of the complication is very high. There is need to tackle this issue to reduce its occurrence in public particularly in elder patients [3]. There is influence of other clinical condition on the treatment of hypertension as DM, renal inefficiency. Liau in his research work declared the Olmesartan as highly potent and has a fast-anti-hypertension impact as compared to Losartan for the treatment of hypertension from mild to moderate nature in patients of China. Valarie in his research work stated that Amlodipine is much effectual and well-tolerated in the patients of elder as well as young age [4,5]. The main rationale of this research work was to determine the effectiveness and safety of the anti-hypertension medication among the patients who got admission in the five private hospitals of Sialkot.

MATERIAL AND METHODS:

This prospective research work carried out on four hundred randomly recruited patients from five different private hospitals of Sialkot. All the patients with the diagnosis of hypertension alone or in combination with other medical conditions, from both genders and from 20 to 80 years of age were the participants of this research work. This research work included the patients from all the socioeconomic classes of the population. All these patients were present with a history of hypertension for last 10 to 15 years. All the patients present with pregnancy, AIDS, cancer or having less than 20 years of age or greater than eighty years of age were not included in this research work. This research work covered a duration of one year from January 2019 to December 2019.

All the patients who were fulfilling the inclusion standard and got admission in one of the five private hospitals in the duration of this research work, got recruitment. The collected information includes the file number of the patient, age, sex, height, weight, blood pressure at the time of admission, marital status, number of children, status of smoking, consumption of alcohol, history of the current illness, experience of exercise, load of working environment, history of medication, adverse reactions of the medication and occurrence time. The collection of the information carried out from the clinical files of the patients, or taking interviews of patients, doctors or nurses. Information about adverse reactions of drugs was collected from the patients and its confirmation was provided by hospital staff. The data about the effectiveness of the medication was measured with the monitoring of BP routinely. SPSS V. 20 was in use for the statistical analysis of the collected information. We utilized ANOVA for the comparison of the differences in BP of various age groups.

RESULTS:

There were four hundred patients in this research work and 87.50% patients were from male gender. Average BMI was 28.0, average DBP was 82.0 mmHg and average SBP was 139.0 mmHg during hospital stay. Ninety percent patients were married, 82.50% patients had offspring and 52.50% patients were non-smokers, 17.50% patients were smokers and 20.0% had left smoking. All the smokers were from male gender and most of the patients were the residents of Sialkot city. There were total 33.30% alcoholics. Ninety two percent alcoholics were males. About 82.50% patients were performing stressful jobs. The condition of the disease of patients and coexisting clinical issues are present in Table-1. Total 32.50% were doing physical exercise, and eighty five percent among them were non-smokers.

Table 1: Distribution of Medical Conditions Vs Patients

Main diseases	Additional diseases													
	A	C	CH	M	O	CAD	N	K	DVT	H	IBS	A	L	T
Hypertension	0	10	0	0	0	20	60	10	10	0	0	0	0	110
Hypertension + Dyslipidaemia	20	0	0	10	0	10	80	0	10	0	10	10	0	150
No. of patients														
Hypertension + Dyslipidaemia + Diabetes Mellitus	0	0	0	0	10	0	3	1	0	0	0	0	0	50
Hypertension + Diabetes Mellitus	10	0	10	0	0	20	30	0	0	10	0	0	10	90

A: Asthma; C: Cancer; CH: Cholecystitis; M; Meat allergy; O: Odynophagea; CAD: Coronary Artery Disease; N: No additional diseases; K: kidney stone; DVT: Deep Vein Thrombosis; H: Hyperuricaemia; IBS: Inflammatory Bowel Syndrome; A: Allergic rhinitis; L: Lung infections; T: Total

Total nine patients suffering from DM and hypertension were not performing any kind of physical activities. Total 50.0% of plain hypertension patients and 47.0% patients of hypertension with dyslipidemia were participating in physical exercises. In this research work, 82.0% patients were present with the history of hypertension in their parents. Detailed age distribution with the incidence of hypertension is present in Table-2.

Table 2: Age Distribution

Age range	Frequency	Percentage
20-29	20	5
30-39	60	15
40-49	150	37.5
50-59	120	30
60-69	20	5
70-79	30	7.5
Total	400	100

Anti-platelets and lipid reducing, angiotensin converting enzyme-inhibitors, Angiotensin-2 antagonists, blockers of calcium channel, beta blockers were provided to the patient duration their stay in hospital. The name of these medication, number of doses and usage frequency is present in Table-3.

Table 3: List of Medications Given During the Study

Medication	Dose (mg)	Frequency	NOP
Valsartan	160	Once daily	120
Amlodipine	05 - 10	Once daily	80
Rosuvastatin	10	Once daily	70
Aspirin	100	Once daily	190
Flu vastatin	80	Once daily	60
Simvastatin	5-40	Once daily	120
Atorvastatin	20-40	Once daily	80
Clopidogrel	75	Once daily	70
Gliclazide	30-80	Once-twice daily	60
Losartan	50-100	Once daily	20
Lisinopril	10-20	Once daily	40
Esomeprazole	20	Once daily	40
Felodipine	05-10	Once daily	20

Fenofibrate	200	Once daily	10
Lercanidipine	10	Once daily	50
Hydrochlorothiazide	25	Once daily	150
Moxonidine	0.4	Once daily	20
Metformin	500-1000	Twice daily	50
Eosinophil	05-20	Once daily	30
Perindopril	5	Once daily	20
Atenolol	25-100	Once daily	80
Hydroxyzine	10	Once daily	10
Pravastatin	40	Once daily	40
Allopurinol	300	Once daily	10
Glimepiride	02-04	Once-twice daily	30
Amiloride	10	Once daily	10
Bisoprolol	5	Twice daily	10
Frusemide	40	Twice daily	20
Carvedilol	3-12.5	Once-twice daily	20

NOP: Number of Patients Taking the Medication

Table-4 shows the all the adverse reactions of drugs with each single medicine or combine treatment used for the patient. The percentage of the occurrence of adverse drug reactions in all the patients were not same; headache in 37.50%, fatigue in 37.50%, numbness in 10.0%, dizziness in 12.50%, shortness of breath in 5.0%, edema in 12.50%, muscle cramps in 15.0%, nausea in 17.50%, hunger loss in 7.50%, problems of gastrointestinal tract in 17.50%), chest pain in 12.50% and cough was present in 12.50% patients.

Table 4: Medication Therapy Vs Adverse Drug Reactions

D or DC	NOPUD	ADR1 (no.)	ADR2 (no.)	ADR3 (no.)	ADR4 (no.)	ADR5 (no.)
V, Ro, As, Si, Am, Hy	9	F	E			
V, Ro, As, Si, C, Hy	11	N	M	LOA	LOSD	
V, Ro, As, Si, Hy	8	G				
V, As, Fl, Ro	9	F	N	LOA	CP	
V, Fl, Hy	10	F	Nu	Di	Ba	
V, Fl, Hy, Le	10	He				
V, Am, Hy, At	10	Di	Ba	M		
V, Hy	10	Di	N			
As, Ro, C	10	He	F			
As, Ro, Am, Si	10	G	He			
As, Ro, At, Al, Hy	10	G	F	M		
As, Si, At, C	7	He	LOA	PU		
As, Si, C	9	N				
As, Am, Si, Fl	10	He	F			
As, Si, Fl, Le, Mo, Hy	10	He	Nu	E	G	Dm
As, At	10	He	N	Vd		
As, At, C	10	F				
As	40	He	G	F		
Am, Si, Hy	10	He	Di			
Am	30	He	F	E	M	
Si	10	He	F			
Si, C, Le	11	M				

Hy	12	F	Fe			

D or DC: Drug or drug combination; NOPUI: Number of Patients Using the Drug; ADR (no.): Adverse drug reaction and the number of patients reported to have the ADR. Drugs: V: Valsartan; C: Clopidogrel, Hy: Hydrochlorothiazide; Ro: Rosuvastatin, as; Aspirin; Si; Simvastatin; Am: Amlodipine; At: Atorvastatin; Le: Lercanidipine; Fl: Flu vastatin; R: Rosiglitazone; Mo: Moxonidine. ADRs: F: Fatigue; E: Edema; N: Numbness; M: Muscle cramps; LOA: Loss of appetite; LOSD: Loss of sexual desire; G: GIT problems; N: Nausea; CP: Chest pain; Nu: Numbness; Di: Dizziness; Ba: Bad breath; He: Headache; PU: Painful urination; Dm: Dry mouth; Vd: Visual disturbance; Fe: Fever

DISCUSSION:

According to an estimation, more than seventy five percent population of Sialkot is from fifteen to sixty-four years of age. High amount of population is present from almost all the cities of the country [6]. Most of the studied population in this research work was overweight. High BMI is the outcome of life style of the patients [7,8]. There is also illustration that DBP and SBP has association with the body mass index. Adverse approaches of treatment and lack of knowledge are the reason in the rise of the rate of incidence of hypertension [9,10]. Less physical activity, low level of income, having three or more children and status of smoking are the main contributors in developing the hypertension in our population already examined by another research work [11]. 82 % patients of this current research work were present with the history of hypertension in their parents. Many other researches works also concluded the hereditary factors on developing of hypertension [11].

This research work showed that SBP & DBP difference was not significant. This may because these patients were wealthy enough to get treatment in such institutes as examined by Abdishakur [12]. One other research work conducted on more than twelve thousand adults stated that beta blockers have raised the prevalence of DM by 28.0% and it was much higher than the patients who were present without medication [13,14,15]. One other research work concluded that combined treatment of beta blockers & thiazide diuretics enhanced the prevalence of DM by 32.0% [16]. There is no adverse impact of Carvedilol and it also improves the MS (Metabolic Syndrome) as elaborated in comparative research work conducted by Bakris [17]. So, it is important to avoid the use of beta blockers if the patients are suffering from DM and this fact was also examined by Padwal & Laupacis in their research work. One comparative research work conducted on combined treatment of aspirin & Clopidogrel and aspirin alone to the DM patients suffering from hypertension, discovered that combined treatment was more effective for such patients [18,19]. In this current research work, 67.50% patients were present with the development of adverse drug reactions. There is need to take serious preventive measures to reduce the occurrence of ADR with the selection of pharmacotherapeutic alternatives as mentioned by Alomar in his research work.

CONCLUSION:

Combination treatment has association with the adverse reactions of drugs with very high rate which is enough to permit the decrease in the amount of medication or change in the prescription of medication. Most important factor which influences the compliance of patient and adherence to medicines is the existence of the adverse reaction of the drugs. There is requirement of multi-disciplinary professionals and patient's cooperation for the management of hypertension.

REFERENCES:

1. Abdishakur, M.A., J.D. Nico, S. Abouchacra, J.Y. Pathan and E.N. Obineche, 2006. Under-treatment and under diagnosis of hypertension: A serious problem in the United Arab Emirates. BMC Cardiovasc. Disord., 6: 24. DOI: 10.1186/1471- 2261-6-24.
2. Alomar, M.J., A.A. Hourani and S.A. Sulaiman, 2008. Proposal for the development of adverse drug reaction prediction model. Am. J. Pharmacol. Toxicol., 3: 190-197.
3. Bakris, G.L., V. Fonseca and R.E. Katholi, 2004. Metabolic effects of carvedilol Vs metoprolol in patients with type 2 diabetes mellitus and hypertension. A randomized controlled trial. J. Am. Med. Assoc., 292: 2227-2236. DOI: 10.1001/jama.292.18.2227
4. Dahlof, B., P.S. Sever, N.R. Poulter, H. Wedel and D.G. Beevers *et al*., 2005. Prevention of cardiovascular events with an antihypertensive regimen of amlodipine adding perindopril as required versus atenolol adding bendroflumethiazide as required, in the Anglo-Scandinavian Cardiac Outcomes Trial-Blood Pressure Lowering Arm (ASCOT-BPLA): A multicentre randomized controlled trial. Lancet, 366: 895-906. DOI: 10.1016/S0140-6736(05)67185-1
5. Elshahat, Y.M., 1999. Hypertension in UAE citizenspreliminary results of a prospective study, Saudi J. Kidney Dis. Transpl., 10: 376-381. http://www.sjkdt.org/text.asp?1999/10/3/376/37247

6. European Society of Hypertension-European Society of Cardiology, 2003. Guidelines for the management of arterial hypertension. Eur. Heart J., 24: 1601-1610. DOI: 10.1016/S0195 668X(03)00347-6
7. Kotsis, V., S. Stabouli, M. Bouldin, A. Low and S. Toumanidis, 2005. Impact of obesity on 24-hour ambulatory blood pressure and hypertension. Hypertension, 45: 602-607. DOI: 10.1161/01.HYP.0000158261.86674.8e
8. Liau, C.S., C.M. Lee, S.H. Sheu, K.C. Ueng and T.C. Su *et al*., 2005. Efficacy and Safety of
9. Olmesartan in the Treatment of Mild-to-Moderate Essential Hypertension in Chinese Patients. Clin Drug Invest., 25: 473-479. http://www.medscape.com/viewarticle/507360
10. Opie, L.H., K. Yackoob and M.D. Seedat, 2005. Hypertension in Sub-Saharan African populations. circulation. J. Am. Heart Assoc., 112: 3562-3568. DOI: 10.1161/CIRCULATIONAHA.105.539569
11. MEDLAB Magazine, 2006. Content. http://www.arabhealthonline.com/upl_images/Issue 6-article3.pdf%20
12. Musaiger, A.O., O.L. Lloyd, A.B. Bener and S.M. Al-Nyadi, 2003. Life style factors associated with obesity among male students in the United Arab Emirates. Nutr. Food Sci., 33: 145-147. DOI:10.1108/00346650310488480
13. Padwal, R. and A. Laupacis, 2004. Antihypertensive therapy and incidence of type 2 diabetes. A systematic review. Diabetes Care, 27: 247-255. DOI: 10.2337/diacare.27.1.247
14. Ruilope, L.M. and J. Segura, 2002. Renal protection by antihypertensive therapy. Curr. Hypertens Rep.4: 324-328. PMID: 12117461
15. Sabri, S., 2005. Correlation between hypertension and income distribution among United Arab Emirates population. Med. J. Malaysia, 60: 416-425. PMID: 16570702
16. Serebruany, V.L., 2008. Effects of clopidogrel and aspirin in combination versus aspirin alone on platelet activation and major receptor expression in diabetic patients: Plavix use for treatment of diabetes. Am. Heart J., 155: 93.e1-93. e7. http://www.medscape.com/viewarticle/569091
17. Stamler, J., R. Stamler and J.D. Neaton, 1993. Blood pressure, systolic and diastolic and cardiovascular risks: US population data. Arch. Intern. Med., 153: 598-615. PMID: 8439223
18. Todd, W.G.R., 2000. Hypertension and antihypertensive therapy as risk factors for type 2 diabetes mellitus. N. Engl. J. Med., 342: 905-912. http://content.nejm.org/cgi/content/abstract/342/13/ 905
19. Valcarcel, Y., R. Jimenez, V. Hernandez, R. Aristegui and A. Gil, 2006. Efficacy and safety of amlodipine. Clin. Drug. Invest., 26: 125-133. http://www.medscape.com/viewarticle/528305.