ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 12, Issue, 08, pp.13014-13016, August, 2020

DOI: https://doi.org/10.24941/ijcr.39381.08.2020

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

TO STUDY EFFECT OF TELMISARTAN ON HYPERTENSION

[1]Kapil Dev.*[2] Mohsin Ali and [3]Subodh Prakash.

[1, *2] Assistant Proffesor, Department of Medicine, Muzaffarnagar Medical College, Muzaffarnagar, U.P. India.
[3]Proffesor, Department of Medicine, Muzaffarnagar Medical College, Muzaffarnagar, U.P. India

ARTICLE INFO

Article History:

Received 30th May, 2020
Received in revised form
21st June, 2020
Accepted 10th July, 2020
Published online 30th August, 2020

Key Words:

Hypertension ,ARB (Angiotensin Receptor Blocker) ,Telmisartan.

ABSTRACT

Objectives: Elevated blood pressure in the early morning is associated with increased cardiovascular risk. It is crucial that antihypertensive medication controls blood pressure to minimize this risk at this time. The ARB with the longest half-life is telmisartan. Its potential to reduce blood pressure in the risky early morning hours has been demonstrated in numerous clinical studies using Ambulatory blood pressure monitoring. **Material and Methods:** This study was conducted during the period from the December 2016 until the end of November 2019 in Muzaffarnagar Medical College, Muzaffarnagar, U.P., India.. A total of 100 subjects of hypertension who were treated with telmisartan 40 mg for six weeks having an age group of 40-65 years were included. **Result:** The results show comparison of blood pressure between without treatment and with telmisartan 40 mg for six weeks. The mean levels of SBP and DBP in control group without treatment were 176.14 ± 12.06 mmHg and 94.26 ± 8.32 mmHg. On the other hand in study group with telmisartan 40 mg for six weeks subjects were 128.08 ± 10.18 and 84.22 ± 6.14 respectively. It is evident from data that telmisartan 40 mg significantly decreased blood pressure. **Conclusions:** Angiotensin receptor blocker (ARBs) like telmisartan has been used to normalize the blood pressure. Further studies with large number of subjects with longer duration of follow-up are required to validate these observations.

Citation: ***Kapil Dev, Mohsin Ali and Subodh Prakash.*** **2020.** "To study effect of telmisartan on hypertension", *International Journal of Current Research*, 12, (08), 13014-13016.

INTRODUCTION

Hypertension remains the most prevalent cardiovascular disease (CVD) risk factor and is present in ever-growing numbers worldwide (Mancia, 2007; Wolf-Maier, 2003). Hypertension, which affects one in four adults worldwide, is an important cause of cardiovascular morbidity and mortality, and antihypertensive treatment is a common therapeutic intervention (Kearney, 2005; Lawes, 2008; GBD, 2013). Clinical guidelines have recommended threshold levels for the implementation of antihypertensive therapy, typically based on blood pressure levels assessed by the physician in an office environment (World Health Organisation, 2014; James, 2014). Hypertension can be managed effectively with a wide range of drugs from different classes. However, different combinations of these agents are frequently required for blood pressure to be sufficiently controlled for patients to reach guideline targets. Telmisartan, an angiotensin II receptor antagonist (AIIRA), is effective in controlling hypertension in a broad population of hypertensive patients, including the elderly and those with comorbid conditions (type 2 diabetes and renal impairment), when used as monotherapy or in combination with the thiazide diuretic, hydrochlorothiazide (HCTZ) (Chambers, 2008). Telmisartan, like other AIIRAs, blocks the effects of angiotensin II by competitively binding to angiotensin II type 1 (AT1) receptors. It has a longer plasma half-life than all of the other AIIRAs currently available, which accounts for its extended control of blood pressure over a 24-hour period (Kearney, 2005)

Corresponding author: **Mohsin Ali,**
Assistant Proffesor, Department of Medicine, Muzaffarnagar Medical College, Muzaffarnagar, U.P. India.

MATERIALS AND METHODS

This study was conducted during the period from the December 2016 until the end of November 2019 in Muzaffarnagar Medical College, Muzaffarnagar, U.P., India.. A total of 100 subjects of hypertension without treatment were included as control group and after treated with telmisartan 40 mg for six weeks having age group of 45-70 years were included as study group. Ambulatory blood pressure (ABP) measurement: ABP was measured using Space labs device (90207 Space labs Inc, USA). A uniform protocol of inflation once in every 30 min was used. The cuff was applied to the non-dominant arm. The recordings were started in all the patients between 0700 and 1000 h. For the purpose of ambulatory BP monitoring, daytime was defined as between 0600 and 2200 h and night time was defined as between 2200

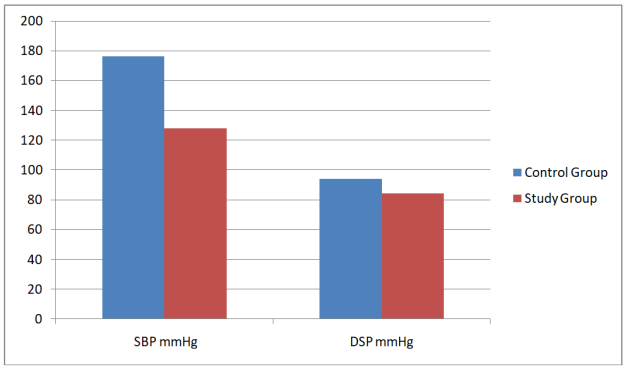
to 0600 h. Using software provided by the manufacturer average of all the recordings of systolic, diastolic pressure and mean arterial pressures for each time period and the entire 24 h period were obtained. A value of 0.9 or lower for the ratio of mean night time systolic pressure to day time systolic pressures was defined as a normal drop in blood pressure during sleep (dipping pattern). Trough BP was defined as mean of BP recordings between 0200-0800 h, the last 6 h of the dosing interval of telmisartan.

Stastical analysis: Data analysis was performed using Epi info software version 3.5.1. Descriptive statistics, including mean, range, and standard deviations, were calculated for all variables. Proportions were compared using Chi- square tests and chi square for trend at 0.05 level of significance.

RESULT

Effect of Telmisartan on hypertension

Blood Pressure	Control Group (Without Treatment)	Study Group (Telmisartan 40 mg)	P value
SBP (mmHg)	176.14 ± 12.06	128.08 ± 10.18	p < 0.001
DSP (mmHg)	94.26 ± 8.32	84.22 ± 6.14	p < 0.001



The results show comparison of blood pressure between without treatment and with telmisartan 40 mg for six weeks. The mean levels of SBP and DSP in control group without treatment were 176.14 ± 12.06 mmHg and 94.26 ± 8.32 mmHg. On the other hand in study group with telmisartan 40 mg for six weeks subjects were 128.08 ± 10.18 and 84.22 ± 6.14 respectively. It is evident from data that telmisartan 40 mg significantly decreased blood pressure.

DISCUSSION

Elevated systolic or diastolic pressure causes increased cardiovascular risk, and the absolute risk increase per mmHg is greater at higher blood pressures, so that even modest reductions of severe hypertension can provide substantial benefit[10]. Relative risk reduction from blood pressure reduction is similar across populations with varying absolute risk, so the absolute benefit is greater in patients who are at higher risk independent of their hypertension (for example, patients with diabetes or hyperlipidaemia), and such patients would be expected to benefit from more aggressive treatment to a lower blood pressure goal (Erica, 2002). Some antihypertensive drugs have smaller blood pressure effects (as monotherapy) in black patients, and many antihypertensive drugs have additional approved indications and effects (e.g., on angina, heart failure, or diabetic kidney disease) (Hazel Mae, 2015). These considerations may guide selection of therapy.

Telmisartan tablets may also be used as initial therapy in patients who are likely to need multiple drugs to achieve their blood pressure goals (Marc, 2007). Telmisartan tablet is indicated for the treatment of hypertension, alone or with other antihypertensive agents to lower blood pressure (Law, 2003). Lowering blood pressure reduces the risk of fatal and non fatal cardiovascular events, primarily strokes and myocardial infarctions (Nelson, 2010). These benefits have been seen in controlled trials of antihypertensive drugs from a wide variety of pharmacologic classes including angiotensin II receptor blockers and dihydropyridine calcium channel blockers (Li, 2014; Lindholm, 2005). Telmisartan is an angiotensin II receptor antagonist that is highly selective for type 1 angiotensin II receptors (Shin-ichiro Miura, 2011; Amy Barreras, 2003). Telmisartan 20 to 160 mg once daily produced mean reductions in supine trough systolic blood pressure and diastolic blood pressure of up to 15.5 and 10.5 mm Hg, respectively. Maximum blood pressure reduction occurred with a dosage of 40 to 80 mg/day (Sharpe, 2001)

Conclusion

Telmisartan has well-known antihypertensive properties, but there is also strong clinical evidence that it reduces left ventricular hypertrophy, arterial stiffness and the recurrence of atrial fibrillation, and confers renoprotection. Therefore, telmisartan is a useful therapeutic option in the management of patients with hypertension.

Conflict of interest: Authors declares no conflict of interest.

Acknowledgement

The authors thanks to, Professor and Head, Department of Medicine for encouragement, support and guidance during the study.

REFERENCES

Mancia G, De Backer G, Dominiczak A, et al. 2007 Guidelines for the Management of Arterial Hypertension: The Task Force for the Management of Arterial Hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC) J Hypertens. 2007;25(6):1105–1187.

Wolf-Maier K, Cooper RS, Banegas JR, et al. Hypertension prevalence and blood pressure levels in 6 European countries, Canada, and the United States. JAMA. 2003;289(18):2363–2369.

Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: analysis of worldwide data. Lancet. 2005;365:217–223.

Lawes CMM, Vander Hoorn S, Rodgers A, for the International Society of Hypertension Global burden of blood-pressure-related disease, 2001. Lancet. 2008;371:1513–1518.

GBD 2013 Risk Factors Collaborators Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risk factors or clusters of risks in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2015;386:2287–2323.

World Health Organisation. A global brief on hypertension: silent killer, global public health crisis. Accessed 19 June 2014.

James PA, Oparil S, Carter BL, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the eighth joint national committee (JNC 8) JAMA. 2014;311:507–520.

Chambers, S. M. Schachter, J. Morrell, George Kassianos. Telmisartan - An effective antihypertensive for 24-hour blood pressure control. Drugs in Context. January 2008; 4(1):1-14.

Chambers, S. M. Schachter, J. Morrell, George Kassianos. Telmisartan - An effective antihypertensive for 24-hour blood pressure control. January 2008 Drugs in Context 4(1):1-14·

William B. Kannel. Hypertension: Reflections on Risks and Prognostication. Med Clin North Am. 2009 May; 93(3): 541–Contents.

Erica J Wallis, Lawrence E Ramsay, Peter R Jackson. CARDIOVASCULAR AND CORONARY RISK ESTIMATION IN HYPERTENSION MANAGEMENT. Heart. 2002 Sep; 88(3): 306–312.

Hazel Mae A. Abraham, C. Michael White, William B. White. The Comparative Efficacy and Safety of the Angiotensin Receptor Blockers in the Management of Hypertension and Other Cardiovascular Diseases. Drug Saf. 2015 Jan; 38(1): 33–54.

Marc P Maillard, Michel Burnier. Is the fixed-dose combination of telmisartan and hydrochlorothiazide a good approach to treat hypertension?. Vasc Health Risk Manag. 2007 Jun; 3(3): 265–278.

Law M, Wald N, Morris J 2003. "Lowering blood pressure to prevent myocardial infarction and stroke: a new preventive strategy". Health Technology Assessment. 2003; 7 (31): 1–94.

Nelson, Mark. "Drug treatment of elevated blood pressure". Australian Prescriber(33): 108–112. Archived from the original on 26 August 2010. Retrieved August 11, 2010.

Li, Edmond CK; Heran, Balraj S; Wright, James M. 2014. "Angiotensin converting enzyme (ACE) inhibitors versus angiotensin receptor blockers for primary hypertension". Cochrane Database of Systematic Reviews. 2014 (8): CD009096. doi:10.1002/14651858.CD009096.pub2. PMC 6486121. PMID 25148386.

Lindholm LH, Carlberg B, Samuelsson O. 2005. "Should beta blockers remain first choice in the treatment of primary hypertension? A meta-analysis". Lancet. 366(9496): 1545–53.

Shin-ichiro Miura, Sadashiva S. Karnik, and Keijiro Saku. 2011. Angiotensin II type 1 receptor blockers: Class effects vs. Molecular effects. J Renin Angiotensin Aldosterone Syst. Mar; 12(1): 1–7.

Amy Barreras, and Cheryle Gurk-Turner. 2003. Angiotensin II receptor blockers. Proc (Bayl Univ Med Cent). Jan; 16(1): 123–126.

Sharpe M[1], Jarvis B, Goa KL. 2001. Telmisartan: a review of its use in hypertension. Drugs. 61(10):1501-29.

****