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ORIGINAL ARTICLE

Role of Metoprolol and Nebivolol in management of hypertension

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ABSTRACT:)

Background: Hypertension is an increasingly prevalent chronic condition that is associated with serious morbidity and mortality. The present study was conducted to compare metoprolol and nebivolol in patients with hypertension. **Materials & Methods:** The present study was conducted on 60 patients age ranged 18-60 years of age with hypertension. They were divided into 2 group of 30 patients each. Group I (15) received 10 mg nebivolol and in group II (15) received 25 mg metoprolol. All were recalled to record blood pressure on day 1, day 25 and day 45. **Results:** In group I, the mean SBP was 160.4, on 25th day was 152.2 and on 45th day was 141.6. In group II, the mean SBP was 166.2, on 25th day was 152.4 and on 45th day was 140.2. The difference was non- significant (P>0.05). **Conclusion:** Authors found both nebivolol and metoprolol found to be equally effective in patients with hypertension.

Key words: Hypertension, Metoprolol, Nebivolol

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INTRODUCTION

Hypertension is an increasingly prevalent chronic condition that is associated with serious morbidity and mortality.[1] Arterial hypertension (AH) is part of the group of cardiovascular diseases that symbolize the highest proportion of diseases mortality causes such as cerebral vascular accident (CVA) and acute myocardial infarction, reaching about two-fifths of the adult population in developed countries.[2]

In this way, there is a need to evaluate the risk factors that contribute to this clinical situation and its prevalence, because the identification of groups at higher risk of being affected by arterial hypertension signifies an important contribution to the prevention of morbidities and effectiveness of the treatment.[3] Hypertension is part of the group of cardiovascular diseases that symbolize the highest proportion of diseases mortality causes such as cerebral vascular accident (CVA) and acute myocardial infarction, reaching about 2/5th of the adult population in developed countries. It is an important risk factor for the development and progression of cardiovascular disease (CVD), which is the leading cause of death and disability worldwide.[4]

Nebivolol 5 mg is likely to have advantages over existing antihypertensive drugs and may have a role in the treatment of hypertension. Metoprolol is the cardioselective beta-1-adrenoreceptor blocker conventionally used to treat hypertensive patients particularly in developing countries such as India.[5] The present study was conducted to compare metoprolol and nebivolol in patients with hypertension.

MATERIALS & METHODS

The present study was conducted on 60 patients age ranged 18-60 years of age with hypertension. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study.

General information such as name, age, gender etc. was recorded. They were divided into 2 group of 30 patients each. Group I (15) received 10 mg nebivolol and in group II (15) received 25 mg metoprolol. All were recalled to record blood pressure on day 1, day 25 and day 45. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Males	10	8
Females	5	7

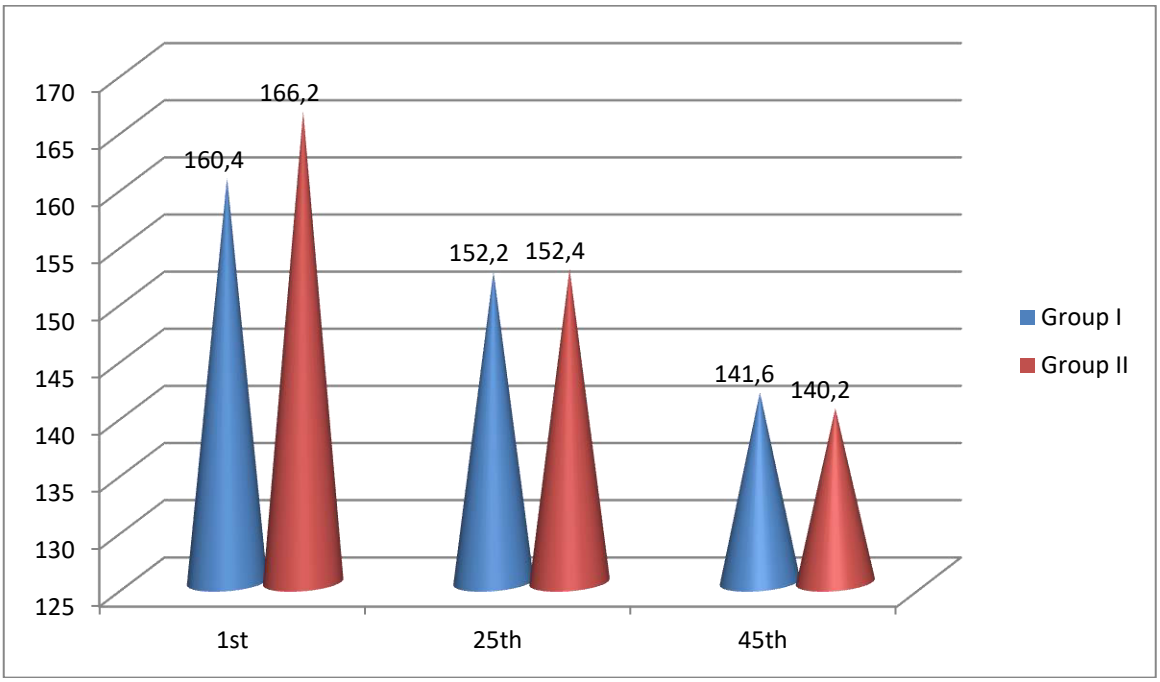
Table I shows that Group I (15) received 10 mg nebivolol and in group II (15) received 25 mg metoprolol.

Table II Comparison in blood pressure in both groups

Day	Group I	Group II	P value
1st	160.4	166.2	0.1
25th	152.2	152.4	0.5
45th	141.6	140.2	0.4

Table II, graph I shows that in group I, the mean SBP was 160.4, on 25th day was 152.2 and on 45th day was 141.6. In group II, the mean SBP was 166.2, on 25th day was 152.4 and on 45th day was 140.2. The difference was non-significant (P>0.05).

Graph I Comparison in blood pressure in both groups



DISCUSSION

Hypertension is an increasingly prevalent chronic condition that is associated with serious morbidity and mortality. It is an important risk factor for the development and progression of cardiovascular disease (CVD), which is predicted to become the leading cause of death and disability worldwide by 2020.[6] As per the Registrar General of India and Million Death Study investigators (2001-2003), CVD was the largest cause of deaths in males (20.3%) as well as females (16.9%) and led to about 2 million deaths annually. In India, 23.10% men and 22.60% women over the age of 25 years suffer from hypertension. Treating systolic blood pressure (SBP) and diastolic blood pressure (DBP) to targets that are <140/90 mmHg is associated with a decrease in CVD complications.[7] The present study was conducted to compare metoprolol and nebivolol in patients with hypertension.

In this study, Group I (15) received 10 mg nebivolol and in group II (15) received 25 mg metoprolol. Patel et al[8] conducted a study in which the efficacy and safety of 2 cardioselective J-blockers, metoprolol 100 mg twice daily and nebivolol 5mg once daily, were compared in ISS patients with mild to moderate hypertension in a double-blind multicentre parallel-group study, which comprised an initial placebo phase followed by 3 months of active treatment. Complete normalization of blood pressure was achieved in 79% of patients in the nebivolol group and 66% in the metoprolol group. There were fewer adverse reactions in the nebivolol group and only those patients receiving metoprolol (n = 3) had to discontinue treatment because of adverse effects. Nebivolol has the advantages of low dosage and once-daily administration which aid patient compliance; this is particularly important as treatment for hypertension is prolonged.

Several studies also indicated that arterial hypertension is a disease with high prevalence in the elderly population, becoming a determining factor in the high rates of morbidity and mortality of these individuals. It affects nearly 60% of the elderly and is often associated with other diseases such as arteriosclerosis, diabetes mellitus

and metabolic syndrome, conferring to this group a high cardiovascular risk.[9]

We found that in group I, the mean SBP was 160.4, on 25th day was 152.2 and on 45th day was 141.6. In group II, the mean SBP was 166.2, on 25th day was 152.4 and on 45th day was 140.2. The difference was non- significant (P>0.05). Van et al[10] compared the cost of nebivolol (2.5 mg, 5 mg, 10 mg) and sustained released metoprolol succinate (25 mg, 50 mg, 100 mg) in hypertensive patients using either of the two drugs. A total of 60 newly detected drug naïve hypertensive patients were considered for the comparison, of which 30 patients were prescribed nebivolol and the other 30 were prescribed metoprolol succinate as per the recommended dosage. The cost of reducing 1 mm of Hg blood pressure per day with nebivolol was 0.60, 0.70, and 1.06 INR, whereas that of metoprolol succinate was 0.93, 1.18, and 1.25 INR at their respective equivalent doses, hence significantly lower with the nebivolol group as compared to the metoprolol group ($P < 0.05$).

CONCLUSION

Authors found both nebivolol and metoprolol found to be equally effective in patients with hypertension.

REFERENCES

1. Law MR, Morris JK, Wald NJ. Use of blood pressure lowering drugs in the prevention of cardiovascular disease: Meta-analysis of 147 randomized trials in the context of expectations from prospective epidemiological studies. BMJ 2009; 338:1665.
2. Ormond BA, Spillman BC, Waidmann TA, Caswell KJ, Tereshchenko B. Potential national and state medical care savings from primary disease prevention. Am J Public Health 2011; 101:157-64.
3. Pittman DG, Tao Z, Chen W, Stettin GD. Antihypertensive medication adherence and subsequent healthcare utilization and costs. Am J Manag Care 2010; 16:568-76.
4. Espinola-Klein C, Weisser G, Jagodzinski A, Savvidis S, Warnholtz A, Ostad MA, et al. Beta-blockers in patients with intermittent claudication and arterial hypertension: Results from the nebivolol or metoprolol in arterial occlusive disease trial. Hypertension 2011; 58:148-54.
5. Chalmers J. Treatment guidelines in hypertension: Current limitations and future solutions. J Hypertens Suppl 1996; 14: 3-8.
6. Ogden LG, He J, Lydick E, Whelton PK. Long-term absolute benefit of lowering blood pressure in hypertensive patients. Hypertension 2000; 35:539-43.
7. Patel, Kamal H. Sharma, Nitisha A. Kamath, Nirav H. Patel, Ankita M. Thakkar. Cost-effectiveness analysis of nebivolol and metoprolol in essential hypertension: A pharmacoeconomic comparison of antihypertensive efficacy of beta blockers. Indian Journal of Pharmacology 2012; 46: 485- 490.
8. Uhlir MF, Havránek K, Leffl erová J, Vojáček J, Widimský J, Winterová KZ. Nebivolol versus metoprolol in the treatment of hypertension. Drug Investig 1991; 3:107-10.
9. Van Bortel LM, Fici F, Mascagni F. Efficacy and tolerability of nebivolol compared with other antihypertensive drugs: A meta-analysis. Am J Cardiovasc Drugs 2008; 8:35-44.