

RESEARCH ARTICLE

A Prospective Study on Comparative Efficacy between three Combinational Therapies for Hypertension

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ABSTRACT:

BACKGROUND INFORMATION: Combination of antihypertensive therapy with an inhibitor of the renin-angiotensin system (RAS) and a calcium channel blocker (CCB) is a rational approach to achieve blood pressure (BP) goals in patients with hypertension, and may provide additional cardiovascular protection compares to others strategies in special population. This article reviews the rationale for, and evidence supporting, the use of newer fixed-dose combinations of RAS inhibitors and CCBs with particulars emphasis on perindopril/amlodipine.

METHODS: A total of 120 patients enrolled in the study from general medicine department in tertiary care hospital. The document data were evaluated for use of comparative efficacy between amlodipine + metoprolol, amlodipine + atenolol, amlodipine + enalapril.

RESULTS: A total of 120 hypertension patients were included in the study. All those who were included in the study were from <40 to > 70 years. In the study out of 120 patients 2.52% of patients were in the age of less than 40 years, 11.6% of patients were in the group of 41-50 years, 21.66% of patients were age group of 51-60 years, 34.16% of patients were in the age group of 61-70years and 30% of patients were in the age group of more than 70 years. Based on the combination therapies the patients were divided into two groups. Totally 60 patients in each group. Each group has a more patients ratio between the age groups of 51-60 and 61-70.

CONCLUSION: Overall the study results conclude that a combination of amlodipine with atenolol therapy have greater impact on control BP, when compared with amlodipine + metoprolol , amlodipine + enalapril therapies. The benefits were more with combinational therapy in comparison to monotherapy.

KEYWORDS: Angiotensin converting enzyme, Calcium channel blocker, Beta adrenergic blockers, Systolic/diastolic, Blood pressure.

INTRODUCTION:

The hypertension affects 29% of US adults.¹ there is a strong and linear association between the level of blood pressure (BP) and subsequent risk of cardiovascular events.² Prior studies also clearly demonstrated that hypertension treatment reduces morbidity and mortality.³

Placebo-controlled studies of the drug treatment of mild-to-moderate hypertension have demonstrated that the reduction of blood pressure is associated with a reduced risk of cardiovascular events and death. Amlodipine is an anti-hypertensive drug without significant effect on the angiotensin system, but it may have favorable effects on the endothelium in vitro⁴.

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MATERIALS AND METHODS:

A prospective observational study of 9 months section was carried out. This study site was conducted in the general medicine department of hospital. The study proposal was approved by ethical committee clearance was obtained on 22/6/2010(REF/IEC/COPD/2015/10).

SAMPLE SIZE: A total 120 prescription was collected.

INCLUSION CRITERIA:

All the inpatient of either gender of age above 18 years for undergoing treatment in the hospital will be taken for the study.

Patients with past medical and medication histories also included.

EXCLUSION CRITERIA:

- Patients those who are admitted in surgery ward and intensive care department.
- Patients with known surgical histories
- Known and suspected cases of allergies
- Pregnant women's

During data collection patients were informed about the study using patients information format. A regular ward round into study department was carried out. The medical charts of patients were screened for appropriateness in all possible ways.

DATA ANALYSIS:

The comparison of blood pressure was calculated. Data analysis was done with the help of computer using by graph pad prism pad 6 and Microsoft excel. Using this software range, frequency, percentage, mean, standard deviation, p- values were calculated. A pvalues less than 0.05 is taken to denote significant relationship.

RESULTS:

A total number 120 patients included in the study, based on exclusion and inclusion criteria.

AGE Vs GENDER DISTRIBUTION

Age interval	Gender				Totoal no of patients	
	Male n=60	Percentage %	Female	Percentage %	N=120	Percentage%
<40	3	2.5	0	0	3	2.52
41-50	8	6.66	6	5	14	11.66
51-60	18	15	8	6.66	26	21.66
61-70	25	20.83	16	13.33	41	34.16
>70	14	11.66	22	18.33	36	30
Total	68	56	52	43.33	120	100

AGE DISTRIBUTION BETWEEN THE GROUPS

Age interval	Group A		Group B	
	No.of patients n=60	Percentage %	No.of patients n=60	Percentage%
<40	4	6.66	2	3.33
41-50	8	13.33	10	16.66
51-60	19	31.66	14	23.33
61-70	24	40	24	40
>70	5	8.33	10	16.66
total	60	100	60	100

GENDER DISTRIBUTION BETWEEN THE GROUPS

Gender	Group A		Group B	
	No.of patients n=60	Percentage %	No.of patients n=60	Percentage %
Male	32	53.33	24	40
Female	28	46.66	36	60
Total	60	100	60	100

SOCIAL HISTORY OF HYPERTENSION BETWEEN THE GROUPS

Social history	Group A		Group B	
	No.of patients n=60	Percentage %	No.of patients n=60	Percentage %
Alcohol	12	20	12	20
Smoker	6	10	8	13.3
Alcohol+smoker	20	33.33	18	30
No history	22	36.66	22	36.66
total	60	100	60	100

PATIENTS WITH GENETIC DISPOSITION

Relationship	Group A		Group B	
	No.of patients n=60	Percentage %	No.of patients n=60	Percentage %
Father	9	15	6	10
Mother	12	20	15	25
Father and mother	18	30	16	2.66
No genetic dispositions	21	35	23	38.33
total	60	100	60	100

HYPERTENSION WITH CO-MORBIDITIES

Co- morbidities	Group A		Group B	
	No.of patients n=60	Percentage %	No.of patients n=60	Percentage %
Diabetes mellitus	39	65	31	51.66
Thyroidism	12	20	12	20
Bronchial asthma	9	15	17	28.33
total	60	100	60	100

PAST MEDICAL AND MEDICATION HISTORY OF PATIENTS IN HYPERTENSION BETWEEN THE GROUPS

Weeks	Group A		Group B	
	No.of patients n=60	Percentage %	No.of patients n=60	Percentage %
Week 1	16	26.66	17	28.33
Week 2	24	40	22	36.66
Week 3	20	33.33	21	35
total	60	100	60	100

COMPARISON OF SYSTOLIC BLOOD PRESSURE IN GROUPS DURING TREATMENT

Group intervals	Mean ± stdev.s	Mean ± stdev.s	P values
	Group A No .of patients n=30 systolic	Group B No.of patients n=30 Systolic	
Group A	129.276 ± 22.39	147.323 ± 34.75	0.5003
Group B	120.172 ± 22.92	131.613 ± 22.96	0.0001
Group C	129.483 ± 17.84	131.613 ± 20.67	0.375

COMPARISON OF DIASTOLIC BLOOD PRESSURE IN GROUPS DURING TREATMENT

Group intervals	Mean ± stdev.s	Mean ± stdev.s	P values
	Group A No .of patients n=30 diastolic	Group B No.of patients n=30 diastolic	
Group A	81.03 ± 12.14	89.45 ± 55.62	0.0177
Group B	76.89 ± 10.63	78.06 ± 22.46	0.0001
Group C	67.66 ± 17.35	84.66 ± 24.31	0.5003

COMPARISON OF SYSTOLIC BLOOD PRESSURE IN GROUPS AFTER TREATMENT

Group intervals	Mean ± stdev.s	Mean ± stdev.s	P values
	Group A No .of patients n=30 systolic	Group B No.of patients n=30 systolic	
Group A	129.276 ± 22.39	147.323 ± 34.75	0.5003
Group B	120.172 ± 22.92	131.613 ± 22.96	0.0001
Group A	129.276 ± 22.39	147.323 ± 34.75	0.5003
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Group C	67.66 ± 17.35	84.66 ± 24.31	0.5003

COMPARISON OF P VALUES IN BOTH SYSTOLIC AND DIASTOLIC

Groups	drugs	Mean ± stdev.s	P value
Group A	Amlodipine + metoprolol	8.9 ± 1.42	* 0.0375
Group B	Amlodipine + atenolol	6.97 ± 2.1	0.0001

RESULTS:

A total of 120 hypertension patients were included in the study. All those who were included in the study were from <40 to > 70 years. In the study out of 120 patients 2.52% of patients were in the age of less than 40 years, 11.6% of patients were in the group of 41-50 years, 21.66% of patients were age group of 51-60 years, 34.16% of patients were in the age group of 61-70 years and 30% of patients were in the age group of more than 70 years. Based on the combination therapies the patients were divided into two groups. Totally 60 patients in each group. Each group has a more patients ratio between the age groups of 51-60 and 61-70. Among in 60 patients in each group, 32 male patients in group A, 24 female patients in group B, 28 female patients in group A, 36 female patients in group B. out of 120 patients. Out of 120 patients, 24(20%) patients with them the history of alcoholic, 13(13.3%) patients with smoking habits, and 38(33.3%) patients have alcoholic and smoking histories and 44(36.66%) patients are with no histories of alcohol, smoking and others. In patients with genetic disposition, 15(12.5%) patients have a history of hypertension in their father(9), mother (12), both(18), no genetic disposition(21) in group A. 25(20.83%) patients have a history of BP in their father (6), mother(15), both (16), no genetic dispositions (23) in group B. attention to hypertension with co-morbidities, among in 120 patients 70 (64.83%) patients with diabetes mellitus, 24(20%) patients with thyroidism, 26 (21.66) patients with bronchial asthma. Out of 120 patients, 46(38.33%) patients come across with past medical history and past medication history on second day in both groups. 41(34.16%) patients come across with past medical and medication history on initial day.

A p value of less than 0.0001 considered significant through out they are compared groups by t test, p value variants at 95% confidence interval. Out of 120 patients, in each group 60 patients were divided, depends on groups. Again in each group 30 patients were divided depends on drugs. Like 60 patients were systolic blood pressure, on combination of amlodipine and metoprolol of group A. again the other 60 patients were diastolic blood pressure, on combination of amlodipine and atenolol of group B. when compared to initial value in systolic of group A. combination of amlodipine and metoprolol the final value.

CONCLUSION:

Hypertension (BP) is among the most common chronic disease in the world, affecting an estimated 180 million people in 2008. Available treatments focus on reducing BP levels. The primary goals of treatment are to target hypertension by maintaining the blood pressure (BP).

Overall the study results conclude that a combination of amlodipine with atenolol therapy have greater impact on control BP, when compared with amlodipine + metoprolol therapies. The benefits were more with combinational therapy in comparison to monotherapy.

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