



### Original Research Article

## To analyse the efficacy and safety of valsartan along with combination of valsartan and hydrochlorothiazide in mild to moderate arterial hypertension patients

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### Abstract

**Background and Aim:** *The aim of the study was to analyse the effect of valsartan and combination of valsartan and hydrochlorothiazide (HCTZ) in mild to moderate arterial hypertension patients.*

**Methods:** *A study sample of 200 patients were taken which included 100 patients of Mild hypertension and 100 patients of Moderate hypertension. The patients were assessed for a total of 16 weeks. Depending upon the peripheral blood pressure readings, the dosage of valsartan and combination of valsartan and HCTZ was administered.*

**Results:** *It was observed that valsartan and combination of valsartan and HCTZ efficaciously reduced the blood pressure in mild to moderate arterial hypertension patients.*

**Conclusions:** *Valsartan and combination of valsartan/HCTZ are very effective drugs to reduce the blood pressure.*

**Keywords:** *Valsartan, Hydrochlorothiazide, arterial hypertension.*

### Introduction

For cardiovascular morbidity and mortality, arterial hypertension is one of the major risk factor. Arterial hypertension is defined as the blood pressure (BP) which is continuously at or above 140/90 mmHg. The patients are treated pharmacologically along with suggestions of lifestyle changes.

The first line medications for hypertension treatment includes Angiotensin receptor blockers (ARBs) or sartans (e.g. Valsartan). These can be used separately or along with antihypertensive agents like hydrochlorothiazide (HCTZ)<sup>[1]</sup>.

Valsartan is an effective, nonpeptidetetrazole derivative which is orally active and its function is to selectively inhibit Angiotensin II Receptor type 1. This causes reduction in blood pressure and is thus used in treatment of hypertension. Valsartan can be given in combination with other antihypertensive drugs<sup>[2]</sup>. Our study aims to analyse the effect of valsartan and combination of valsartan and hydrochlorothiazide (HCTZ) in mild to moderate arterial hypertension patients.

## Methods

A total of 200 patients were taken for the study which included 100 patients of mild hypertension and other 100 patients for moderate hypertension. The patients which had mild to moderate hypertension with systolic blood pressure (SBP) of 140-179 mmHg and diastolic blood pressure (DBP) of 90-109 mmHg were included. A written consent was taken from each patient.

Those patients in which the blood pressure levels were 180/100 mmHg or were associated with any other type of diagnosis such as secondary hypertension, malignant hypertension, treatment resistant hypertension and patients with history of liver and kidney diseases.

The patients which were included went through active treatment for 16 week<sup>[3]</sup>.

The drugs with doses which we tested included valsartan 80 mg, 160 mg, 320 mg and valsartan 160 mg/HCTZ 12.5 mg, valsartan 320 mg/HCTZ 12.5 mg - Drugs (Valsacor® and Valsaden®/Valsacor® H and HD/Valsacombi®). The patients were asked to take the medicine in the morning once between 7 a.m. to 9 a.m. When the patients were called for the visit, they were asked not to take the medicine before their BP was measured. This was followed by a single tablet of 80 mg of valsartan every day in all the patients. In those patients where the BP was not reduced to 140/90 mmHg or 130/80 mmHg or less, the dose was adjusted to 160 mg of Valsartan (Mild hypertensives) or valsartan 160 mg/HCTZ 12.5 mg (Moderate hypertensives). This was further followed by increase in dose to 320 mg of Valsartan (Mild hypertensives) or valsartan 320 mg/HCTZ 12.5 mg (Moderate hypertensives) in the patients in which target BP levels were not achieved.

At every visit, the medical history, physical examination, assessment of vital signs were done to assess the patient's disease status.

## BP Measurement

The patient on the day of visit were called in the morning hours (7 a.m. – 9 a.m.) and BP was measured prior to intake of the medication. The BP was measured by an oscilometric device by the primary investigator and supporting staff. When the BP was measured, the patient was asked to sit on the chair with their back supported and the arms were supported at the heart level. In a minimum of 2 min intervals, three measurements were taken. The accuracy taken was minimum 2 mmHg. The mean was calculated from the last two measurement values and was notes as the final BP value. European Society of Hypertension/European Society of Cardiology (ESH/ESC) guidelines for the management of arterial hypertension, 2013 was taken as reference for the measurement values<sup>[4]</sup>.

## Statistical Analysis

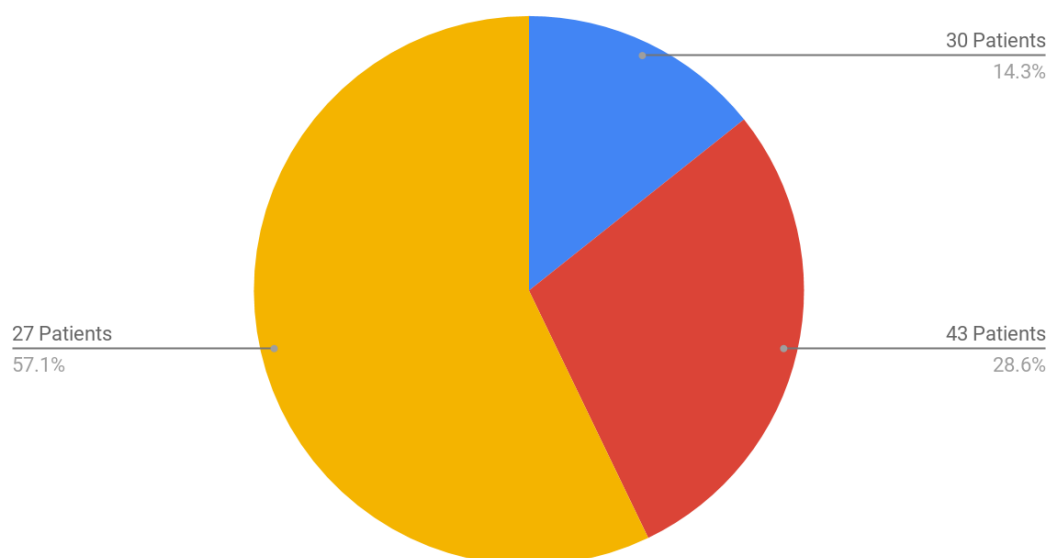
The statistical analysis was done using SPSS version 22.0.  $P < 0.05$  was considered significant.

## Results

In mild hypertensive patients, from 100 study samples, 30 patients were administered 80 mg of Valsartan, 43 were administered with 160 mg Valsartan and rest 27 were administered with 320 mg Valsartan. At the end of four visits, the BP levels were achieved to 120/80 mmHg. (Graph 1) In moderate hypertensive patients, from 100 study samples, 41 patients were administered with valsartan 160 mg/HCTZ 12.5 mg while 37 patients were administered with valsartan 320 mg/HCTZ 12.5 mg. The primary investigator was able to achieve 130/90 BP levels with these 78 patients. Rest 22 patients failed to complete four visits. (Graph 2)

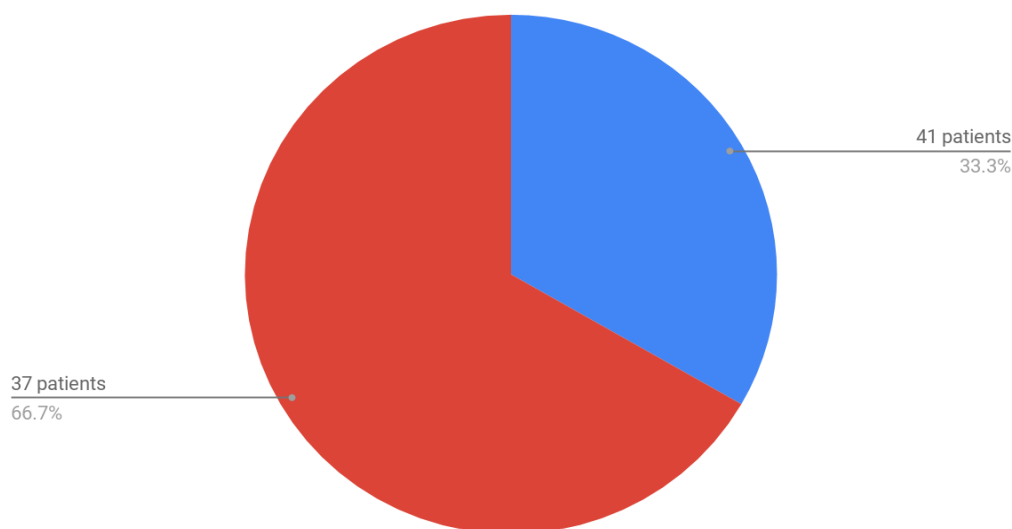
**Graph 1**

Valsartan (Dose in mg)



**Graph 2**

Valsartan (mg) / HCTZ (12.5 mg)



**Discussion**

In India, there is a rapid demographic and epidemiological transition going on as it is a developing country. Nutrition plays a main role in such transition. With sedentary lifestyle and junk eating habits, hypertension is seen in more and more number of population<sup>[5]</sup>. To treat hypertension not only lifestyle modifications are important but getting the right treatment at right time is equally important. Hypertension is usually treated with anti-hypertensives such as

Angiotensin receptor blockers (ARBs) or sartans (e.g. Valsartan)<sup>[6]</sup>.

Our study aimed to observe the effect of Valsartan alone and in combination with HCTZ. A total of 200 patients were taken for the study. 100 mild hypertensive patients and 100 moderate hypertensive patients were included. From the 100 patients suffering from mild hypertension, 30 patients were administered 80 mg of Valsartan, 43 were administered with 160 mg Valsartan and rest 27 were administered with 320 mg Valsartan. At

the end of four visits, the BP levels were achieved to 120/80 mmHg.

In the sample size of 100 of moderate hypertensive patients, 41 patients were administered with valsartan 160 mg/HCTZ 12.5 mg while 37 patients were administered with valsartan 320 mg/HCTZ 12.5 mg. The primary investigator was able to achieve 130/90 BP levels with these 78 patients. Rest 22 patients failed to complete four visits.

The patients in which the BP was not under control in subsequent visits, the dose was increased until it reached to the desired level. Both the groups were compared and the statistical difference was found to be  $<0.05$ .

From the study, it was noted that for mild hypertension, valsartan can be an effective medication to administer. If the levels are not under control, the dosage can be increased. For moderate hypertensives patients, the combination of valsartan+HCTZ can be given. For the patients whose BP is not under control with the same dosage, the dosage was increased.

### Conclusion

Hypertension is becoming a common problem in today's population which is usually treated with anti hypertensives such as Angiotensin receptor blockers (ARBs) or sartans (e.g. Valsartan). From our study we concluded that Valsartan is an effective medication to administer in mild hypertensives and combination of Valsartan + HCTZ in moderate hypertensives. Depending on the levels of BP on follow up visits, the dosage can be adjusted.

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