The Journal of Medical Research

Research Article

JMR 2018; 4(5): 213-215
September- October
ISSN: 2395-7565

www.medicinearticle.com
Received: 28-08-2018
Accepted: 15-10-2018

***Corresponding author:**
Dr Munish Sharma[1]
MD medicine, CH(EC) Kolkata, India

To compare the efficacy of Outpatient Blood Pressure record with Ambulatory Blood Pressure Monitoring (ABPM) in the clinical follow up of hypertensive patients on antihypertensive therapy

Dr Munish Sharma[1], Dr Anupam pandit[2]

1 *MD Medicine, CH(EC) Kolkata, India*

2 *MDS, Dental Villa, Kolkata, India*

Abstract

Introduction: Optimal BP control is requiring a smooth reduction in the 24-hour BP profile. There are multiple components of BP like day time mean, night time mean, 24 hrs mean, blood pressure variability, day- night difference and it is still not clear which particular component is the best predictor of prognosis. There a need to define the control in our population as very few studies exist in our population.

Material and Methods: Study population- This matched-paired, cross-over study was performed in a tertiary care cardiac centre in a metro city of India from September 2014 to July 2016. **Study protocol-** Subjects were advised to take anti-hypertensive drugs at 0600 hrs and rest at any time of the day After baseline BP at 1st visit, OPD BP readings were taken at 1, 3 and 6 months. It was compared with ABPM done at 1 and 6 months. Oscillometric (Space Labs 90202; Spacelabs, Inc., Redmond, WA) ambulatory blood pressure monitor was used for 24 hr ABPM measurements. This device took BP reading every 30 minutes from 6:00 am to 10:00 pm and at 60-minute intervals in the night (from 10:00 pm to 6:00 am). OPD BP, smoking, exercise, body weight, drug compliance, and adverse effects were assessed at each OPD visit.

Statistical analyses: Data expressed as the mean ±SD. Comparisons of (1) the OPD mean systolic and diastolic BP at start, one month, three months and six months, (2) OPD and ABPM at one and six months (3) daytime and nighttime systolic and diastolic BP of ABPM, and, (4) change in MAP between group A and group B was made using a paired sampled *t*-test.

A value of 2-tailed $P < 0.05$ was considered statistically significant.

Results: The present study included 51 patients who were on regular follow up from medical OPD of a tertiary care centre. Two patients were lost to follow up.

In our study the Mean systolic OPD BP was 137.33 ± 11.82 with corresponding ABPM 123.92 ± 13.17 which is statistically significant. Also, when OPD and ABPM mean systolic are compared at 6 months the p value is statistically significant. When similar comparison is done for diastolic blood pressure p value at one month is not statistically significant but at six months is significant.

Conclusion: OPD systolic BP at start with OPD systolic BP at one, three and six months the difference was statistically significant. Similar results were found for diastolic and MAP except at one month.

Keywords: Ambulatory Blood Pressure Monitoring (ABPM), Hypertensive patients, Antihypertensive therapy.

INTRODUCTION

History of ambulatory blood pressure starts in 1962 when first such device for ambulatory blood pressure monitoring was developed in [1]. In that device, a microphone was kept over brachial artery, patients used to inflate an occlusive cuff and cuff pressures and electrocardiogram were recorded by magnetic tape recorder. In the classic study by Sokolow *et al*, published in 1966, this device's modified version was used. In this study, relationship between average ambulatory blood pressure and end-organ damage was established.

ABPM measurements are found to be superior for predicting clinical outcomes when compared to clinic or routine blood pressure measurements [2]. Hypertension was shown to be more closely related to ABPM compared to clinic or casual blood pressure measurements [3]. BP measured in OPD may not necessarily represent patients usual BP levels. In various studies, benefits of treatment of hypertension are based on routine OPD BP monitoring.

Blood pressure can be measured in different environments by different people. Various studies have come to conclusion that out patient clinic BP is mostly higher than home self measured BP or ambulatory BP. Even BP measured by a physician tends to be higher than BP measured by a non physician.

When we look at indications of ABPM, it can be used to exclude "white coat" hypertension. It also has a role in assessment of symptomatic hypotension and hypertension, drug-resistant hypertension, in hypertension in pregnancy and old people, and for treatment adequacy assessment. ABPM offers less within subject variability than casual office readings.

Optimal BP control means a smooth reduction in the multiple readings of 24-hour BP. There are multiple components of BP like day time mean, night time mean, 24 hrs mean, blood pressure variability, day-night difference and it is still not clear which particular component is the best predictor of prognosis [4]. There a need to define the control in our population as very few studies exist in our population.

MATERIAL AND METHODS

Study population

This matched-paired, cross-over study was performed in a tertiary care cardiac centre in a metro city of India from September 2014 to July 2016 .

Our study had a total of 51 patients and they had monthly review in our OPD. All patients were Hypertensive subjects on medication for more than 1 year. There were no new instructions regarding diet and physical activity for the patients.
After explaining study protocol in their own language informed consent was obtained. Two patients were lost to follow up.

Study protocol

Subjects were advised to take anti hypertensive drugs at 0600 hrs and rest at any time of the day. After baseline BP at 1st visit, OPD BP readings were taken at 1, 3 and 6 months. It was compared with ABPM done at 1 and 6 months. Oscillometric (SpaceLabs 90202; Spacelabs, Inc., Redmond, WA) ambulatory blood pressure monitor was used for 24 hrs ABPM measurements [5]. This device took BP reading every 30 minutes from 6:00 am to 10:00 pm and at 60-minute intervals in the night (from 10:00 pm to 6:00 am). OPD BP, smoking, exercise, body weight, drug compliance, and adverse effects were assessed at each OPD visit.

Statistical analyses

Data expressed as the mean ±SD. Comparisons of (1) the OPD mean systolic and diastolic BP at start, one month, three months and six months, (2) OPD and ABPM at one and six months (3) daytime and nighttime systolic and diastolic BP of ABPM, and, (4) change in MAP between group A and group B was made using a paired sampled *t*-test. A value of 2-tailed $P < 0.05$ was considered statistically significane

RESULTS

The present study included 51 patients who were on regular follow up from medical OPD of a tertiary care centre. All patients were hypertensive for more than one year on treatment with variable number of drugs. The mean age for males was 49.83 years and females was 63.3 years. There were 11 females and 41 males. Two patients were lost to follow up.

This study was a male dominant study with 82% of males. 2 (4%) male patients had history of paternal CAD, six (12%) had paternal hypertension and one patient (2%) had maternal hypertension. One patient each had maternal and paternal diabetes.

The patients were regularly followed up in OPD and at initial visit their OPD blood pressure was recorded. Every alternate patient was advised to take all antihypertensives at 0600 hrs (gpA) and others were not specified any time to take antihypertensives (gpB). No separate groups were made depending upon number of antihypertensives taken.

After one month their OPD blood pressure and ABPM were recorded . Again at three months their OPD BP was recorded and at six month both OPD and ABPM were recorded.

In our study the Mean systolic OPD BP was 137.33 ± 11.82 with corresponding ABPM 123.92 ± 13.17 which is statistically significant. Also when OPD and ABPM mean systolic are compared at 6 months the p value is statistically significant.

When similar comparison is done for diastolic blood pressure p value at one month is not statistically significant but at six months is significant. When we compare MAP using OPD values and ABPM values the results are highly significant at both one and six months.

DISCUSSION

When we followed up all patients and we compared OPD systolic BP at start with OPD systolic BP at one, three and six months the difference is statistically significant. Similar results were found for diastolic and MAP except at one month.

As we have not changed the medication, the statistically significant difference may be due to explaining the patient about medication, stressing the need of drug compliance and ensuring availability drugs at regular time. Similar results were found when the above values were compared using ABPM.

In this study the effect of number of drugs used by patient and decrease in blood pressure a various intervals was also done and we found that the decrease in OPD BP at 3 and six months was statistically significant in all the patients irrespective of number/combination of drugs.

The above results are comparable to the study [6]. In that study, results indicate that the average difference between the mean clinic BP and the 24-hour mean of BP was 20.0 and 6.0 mm Hg for systolic and diastolic BP, respectively ($P<0.001$). The differences between clinic BP values and the diurnal means of the two cardiovascular variables were 15.6 and 1.8 mm Hg ($P<0.001$). The differences were significantly larger in systolic than in diastolic BP and this fact has not been considered in the current reference thresholds for ABPM.

CONCLUSION

OPD systolic BP at start with OPD systolic BP at one, three and six months the difference was statistically significant. Similar results were found for diastolic and MAP except at one month.

REFERENCES

1. Sokolow M, Werdegar D, Kain H, Hinman A: Relationship between level of blood pressure measured casually and by portable recorders and severity of complications in essential hypertension. Circulation 34: 279–298, 1966
2. Perloff D, Sokolow M, Cowan R: The prognostic value of ambulatory blood pressure. JAMA 249: 2792–2798, 1983.
3. Verdecchia P, Schillaci G, Borgioni C, Ciucci A, Pede S, Porcellati C: Ambulatory pulse pressure. A potent predictor of total

cardiovascular risk in hypertension. Hypertension 32: 983–988, 1998
4. Verdecchia P, Schillaci G, Guerrieri M, Gatteschi C, Benemio G, Boldrini F, et al. Diurnal blood pressure changes and left ventricular hypertrophy in essential hypertension. Circulation 1990; 81:528–536.
5. O'Brien E, Murphy J, Tyndall A, et al. Twenty four-hour ambulatory blood pressure in men and women aged 17 to 80 years: the allied Irish bank study. J Hypertens 1991;9:355-60.
6. Ramon C. Hermida, Diana E. Ayala, Differences between clinic and ambulatory blood pressure measurements in untreated patients with grade 1–2 hypertensionAm J Hypertens (2004) 17, 43A–43A.