

## Drug Compliance among Hypertensive Patients in Port Harcourt, Nigeria

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### ABSTRACT

**Background:** Hypertension contributes significantly to cardiovascular morbidity and mortality. Adequate blood pressure control would therefore reduce cardiovascular morbidity and mortality, however adequate blood pressure control requires good treatment compliance.

**Methods:** One hundred consecutive patients aged 30-79 years attending the cardiac clinic of the medical out-patients clinic of the University of Port Harcourt Teaching Hospital were directly questioned about compliance with their antihypertensive drugs and results entered into the questionnaire designed for the study.

**Results:** Compliance was good in sixty percent (60%) of respondents, fair in twenty nine percent (29%) and poor in eleven percent (11%). Compliance was also found to be good in sixty-seven percent (67%) of patients with tertiary education, good in forty one percent (41%) of those with primary education. Compliance was good in seventy four percent (74%) of those taking one drug, good in only thirty three percent (33%) of those taking four drugs. Patients taking single daily dose drugs had good compliance in seventy percent (70%), twice daily dosing had good compliance in fifty five percent (55%) and among those taking thrice daily dosage, compliance was good in only seventeen percent (17%).

**Conclusion:** The study shows that good compliance with anti-hypertensive therapy is best achieved with monotherapy given as single dosage. It also shows the role of education in the level of compliance.

**KEYWORDS:** Drug Compliance; Hypertension; Pattern; Port Harcourt.

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### INTRODUCTION

Hypertension is one of the most important communicable disorders in the world.

Its prevalence in Nigeria ranges from 15-20%<sup>1</sup>. It is probably the commonest risk factor for cardiovascular morbidity and mortality in this part of the world. The introduction of safe and effective antihypertensive drugs has led to a dramatic reduction in morbidity and mortality because of both blood pressure reduction and the patient friendly metabolic effects of some of the drugs<sup>2</sup>. However among subjects receiving drug treatment for hypertension, only about thirty percent (30.0%) achieve blood pressure normalization to less than 140/90mmHg with wide regional variation<sup>3</sup>. Reduction in blood pressure is well correlated to compliance in addition to other factors such as age, duration of hypertension, the presence or absence of complications, social habits, alcohol and other drugs e.g. NSAIDS<sup>4</sup>.

Compliance which is the degree to which a patient adheres to the direction/instruction given by the doctor for dosage of medication, can be assessed by direct questioning of patients, the pill counts method, or blood sampling for drug level estimations<sup>5</sup>. Compliance is improved by adequate instruction, counseling and follow up as well as by single regimens, monotherapy, age and physical activity<sup>5</sup>.

In Nigeria, less than twenty percent (20%) of patients achieve adequate blood pressure control compared to about thirty percent (30%) in Europe and the United States<sup>3</sup>. The reasons for these differences are not quite clear and compliance is not well defined. This has necessitated the need to look at the compliance pattern among hypertensive patients attending the cardiac clinic of the University of Port Harcourt Teaching Hospital with a view to identifying the factors that might influence the degree of compliance.

### MATERIALS AND METHOD

The patients for the study were recruited from the Cardiac Clinic of the Medical

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Out-Patient Department (MOPD) of the University of Port Harcourt Teaching Hospital.

All patients receiving treatment for hypertension alone or in combination with other diseases were directly questioned on the day of attendance about their compliance with prescribed antihypertensive drugs and any other medication being taken. Data collected included information about the patients' age, sex, level of education, duration of hypertension, duration of treatment, number of drugs being taken for hypertension, drug regimen and the source of drug, reasons for non compliance when not complying. Combination drugs were regarded as one drug. Their responses were entered into the questionnaire designed for the study and later extracted on to a data spread sheet. In addition blood pressure control over the last three previous visits (average three months) were documented. Compliance rate was determined using the formula:

$$\frac{\text{No of pills prescribed} - \text{No of pills missed} \times 100}{\text{No. of pills prescribed}}$$

The results are described in percentages and chi sq. test was used to determine the significance of the difference between the categories. P values of less than 0.05 ( $P < 0.05$ ) was considered statistically significant.

## RESULTS

### Age and sex distribution

A total of one hundred patients (100) aged thirty to seventy nine years (30-79 years) mean age 50.34 + 11.14 years were recruited into the study. These consisted of sixty one females (61.0%) and thirty nine males (39.0%).

### Marital Status

Eighty subject (80) were married, sixty (16) were single and four (4) were widowed or divorced.

### Educational Status

Thirty patients (30.0%) had tertiary education, thirty one patients (31.0%) had secondary education, twenty patients (20.0%) had only primary education and nineteen patients (19.0%) had no formal education.

## Overall Compliance

The over all compliance in the study was poor in eleven percent (11.0%) of respondents, fair in twenty nine percent (29.0%) and good in sixty percent (60.0%) of respondents.

**Table I. Overall Compliance Pattern**

Compliance level	No of patients	(%) Percentage
Poor ( $\leq 50\%$ )	11	11%
Fair (51-75%)	29	29%
Good ( $\geq 75\%$ )	60	60%
Total	100	100%

## Drug Dosage Pattern

Among hypertensive patients interviewed, forty three percent (43.0%) were on once daily drug regimen, fifty one percent (51.0%) were on twice daily drug regimen and seven percent (7.0%) were on thrice or more drug regime.

## Prescription Pattern

Analysis of the prescription shows that twenty eight percent (28.0%) were receiving single drug for hypertension, thirty nine percent (39.0%) were receiving two drugs, and twenty four percent (24.0%) were receiving three drugs while nine percent (9.0%) were receiving four –drugs.

Analysis of compliance in relation to the level of education show that among patients with tertiary education, compliance was good in sixty seven percent (67.0%), among those with secondary education compliance was good in sixty four percent (64.0%), among those with only primary education compliance was good in only forty one percent (41.0%) and among those without formal education compliance was good in fifty nine (59.0%). The difference in compliance between the groups was not statistically significant,  $P > 0.05$ .

## Compliance Versus Number of Drugs

Among hypertensive patients taking only one drug, compliance was good in seventy four percent (74.0%), in those taking two drugs, compliance was good in fifty-eight percent (58.0%), among those taking three drugs compliance was good in fifty seven (57.0%) and among those taking four drugs, compliance was good in Thirty three (33.0%).

The difference in compliance between the groups was not statistically significant,  $P < 0.05$ . Table II.

**Table II. Compliance Versus Number of Drugs**

No of Drugs Prescribed	Compliance Level		
	Poor	Fair	Good
One (1)	4(14.8%)	43(11.1%)	20(74.1%)
Two (2)	8(19.5%)	9(22%)	24(58.5%)
Three (3)	-	10(44.2%)	13(56.8%)
Four (4)	-	6(66.6%)	3(33.3%)

## DISCUSSION

Hypertension contributes greatly to cardiovascular morbidity and mortality, therefore the need for adequate blood pressure control as a preventive measure cannot be over emphasized.

Adequate blood pressure control requires good compliance. The present study showed that among hypertensive subjects studied, 60% had good compliance and is comparable to similar studies in Spain (55.5%) using the same method of assessment i.e. direct questioning/patient self declaration<sup>5</sup> the same trend was seen in the Al-Khobar study<sup>6</sup> (74.7%) and in a study in Eastern Sudan<sup>7</sup> (59.6%).

The level of formal education plays a significant role in compliance, as compliance was higher in patients who had secondary or tertiary education compared to those with primary or no formal education. The differences however did not reach statistical significance  $P > 0.05$ . These may indicate the importance of patients educational background in the management of hypertension.

The overall compliance was best among subjects taking single drugs and once daily dosing. Thus compliance was related to the frequency of dosing and the number of drugs being taken as recorded in similar studies among hypertensive in Tanzania<sup>8</sup>. Single daily dosing has also been shown to be more useful in achieving better compliance and reduced cost among Caucasian hypertensive<sup>9</sup>.

Good compliance is associated with reduced cardiovascular morbidity, mortality and reduced health care cost as demonstrated by

studies from the United States<sup>8</sup>. The level of patients education also affect the degree of compliance as patients with secondary and tertiary education will benefit better from medical counselling.

In conclusion, hypertension should be adequately treated and drugs dosing should be tailored to enable patient comply with treatment regimen, so as to reap the full benefit of treatment. This study shows that among hypertensive patients receiving treatment at the University of Port Harcourt Teaching Hospital, the educational status of the patients, the number of drugs being taken and the frequency of dosing are important determinants of the degree of drug compliance.

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