

Original Article

Determination of Adherence to Cardiovascular Medicine in Study Population- A Clinical Study

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ABSTRACT:

Background: Cardiovascular diseases including essential hypertension (HTN), congestive cardiac failure (CCF) and ischemic heart disease (IHD) are very common in Indian population. The present study was conducted to determine adherence to cardiovascular medicine in patients. **Materials & Methods:** The present study was conducted on 525 patients of CVD (HTN, CCF and IHD) of both genders (males- 325, females- 200). HTN was diagnosed by physical examination. Diagnosis of CCF was established on the basis of history, physical examination, and echocardiographic findings. IHD was diagnosed from a history of angina and past AMI, electrocardiogram features, treadmill test, echocardiography and angiography. Morisky's Medication Adherence Scale (MMAS-4) was used for assessing medication adherence in patients. **Results:** Age group <40 years had 64 cases, 40- 60 years had 275 and >60 years had 186 cases. The difference was significant (P- 0.01). 112 males and 160 females were of HTN, 45 males and 50 females were of CCF and 90 males and 68 females were of IHD. The difference was significant (P< 0.05). Adherence to medication was 58%, 58.75%, 51.25% in HTN, CCF and IHD respectively. **Conclusion:** Patients on HTN, CCF and IHD should be carefully evaluated for detection of adherence of medicine. Strategies for detecting the level of adherence of cardiovascular medicines should be developed.

Key words: Electrocardiogram, Hypertension, Morisky's Medication Adherence Scale

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INTRODUCTION

Cardiovascular diseases including essential hypertension (HTN), congestive cardiac failure (CCF) and ischemic heart disease (IHD) are very common in Indian population. Many studies have suggested that a high level of adherence to antihypertensive drug treatment is related to better blood pressure (BP) control and a reduced risk of cardiovascular disease (CVD).¹

Despite the expanding knowledge of management of these diseases, the benefit of patients is restricted largely due to non-adherence to therapy. A considerable proportion of all cardiovascular disease events are due to poor adherence to medicines. Knowledge of factors that affect adherence could play an important role in the development of interventions to improve it. From both qualitative and quantitative studies described in the literature, many factors potentially affecting adherence to medication are known, including demographic, social and cognitive factors,

interactions between health care providers and patients, health care system characteristics, the medication involved and the general health profile of the patient.²

Optimal adherence to cardiovascular medicines confers a significant inverse relation to adverse outcomes. Medication adherence patterns of cardiovascular diseases are reported from urban areas of different countries, but little is known from rural settings of India. The study was conducted to determine adherence to cardiovascular medicines in patients.³ The present study was conducted to determine adherence to cardiovascular medicine in patients.

MATERIALS & METHODS

The present study was conducted in the department of Pharmacology. It comprised of 525 patients of CVD (HTN, CCF and IHD) of both genders (males- 325, females- 200). All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study from institutional ethical committee.

General information such as name, age, etc. was recorded. HTN was diagnosed by physical examination. Diagnosis of CCF was established on the basis of history, physical examination, and echocardiographic findings. IHD was diagnosed from a history of angina and past AMI, electrocardiogram features, treadmill test, echocardiography and angiography.

Patients were prescribed with appropriate medicines at the initial visit and adherence to medicines was assessed in the subsequent visit. Morisky's Medication Adherence Scale (MMAS-4) was used for assessing medication adherence in patients. Results thus obtained were subjected to statistical analysis using chi-square test. P value less than 0.05 was considered significant.

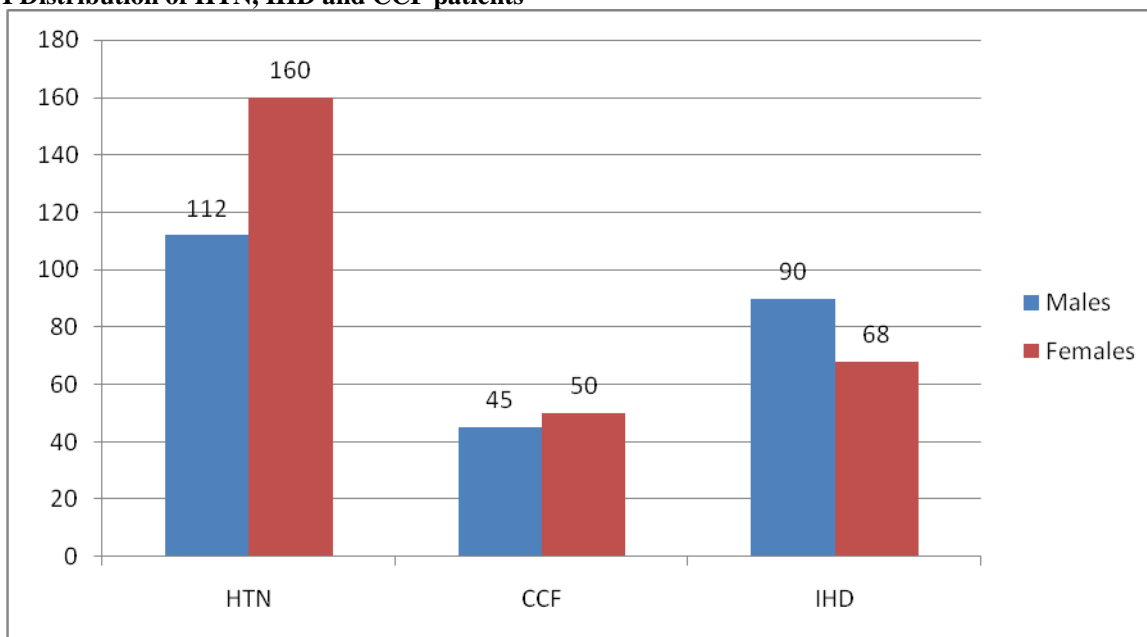
RESULTS

Table I Age wise distribution of cases

Age group	Number	P value
<40 years	64	0.01
40-60 years	275	
>60 years	186	
Total	525	

Table I shows that age group <40 years had 64 cases, 40- 60 years had 275 and >60 years had 186 cases. The difference was significant (P- 0.01).

Graph I Distribution of HTN, IHD and CCF patients



Graph I shows that 112 males and 160 females were of HTN, 45 males and 50 females were of CCF and 90 males and 68 females were of IHD. The difference was significant (P< 0.05).

Table II Assessment of medication adherence by Morisky's instrument

Questionnaire	No. of patients who said no		
	HTN (272)	CCF (95)	IHD (158)
Do you ever forget to take medication?	48%	40%	41%
Are you careless about taking medication?	65%	62%	52%
When you feel better, do you sometimes stop taking medication?	64%	63%	67%
Sometimes, if you feel worse when take your medication, do you stop it?	58%	70%	45%

Table II shows that adherence to medication was 58%, 58.75%, 51.25% in HTN, CCF and IHD respectively.

DISCUSSION

Cardiovascular disease imposes a particular burden and is the leading cause of death in all age groups in virtually all

low and middle income nations. Its prevalence in these regions is increasing at more than twice the rate observed in resource-rich countries. Thus, the prevention and management of cardiovascular illness has become a major focus of healthcare providers worldwide. Medications are a cornerstone of cardiovascular risk reduction. In resource-rich settings, substantial effort has been devoted to improving appropriate prescribing. However, longer-term adherence to evidence-based medications remains suboptimal. For example, only half of patients who experience an acute coronary event are adherent to their prescribed statin two years after starting therapy.⁴

Adherence to medication is the extent to which a person takes medicines as prescribed by the health care provider. It is a key factor for effectiveness of pharmacological therapy. Nonadherence to medication leads to increased morbidity and mortality. Several measurement tools for medication adherence are available. Objective measures of adherence include pharmacy refill records and pill counts. In medication event monitoring system, a microprocessor attached to medicine bottle lid records the occurrence and time of each opening. Subjective methods, such as a questionnaire, interview, or diary are commonly used to measure adherence. These methods are flexible and practical but are less reliable than objective methods.⁵

In present study, age group <40 years had 64 cases, 40- 60 years had 275 and >60 years had 186 cases. It was observed that 112 males and 160 females were of HTN, 45 males and 50 females were of CCF and 90 males and 68 females were of IHD. This is in agreement with Bramley et al.⁶

Santra et al⁷ their study observed that overall adherence to medication was 20.83%, 28.37% and 32% in HTN, CCF, and IHD patients, respectively. Nonadherence was highest in patients of HTN. Among the four reasons of nonadherence assessed by MMAS-4, carelessness was the most common and forgetfulness was the least common cause of nonadherence in all the three groups of patients.

In present study we observed that adherence to medication was 58%, 58.75%, 51.25% in HTN, CCF and IHD respectively. This is similar to Ramli et al.⁸ In a study by Wu et al⁹, among 315 patients analyzed, 49.8% of the patients were adherent. Qualitative investigation revealed discrepancies in classification of adherence and non-adherence based on quantitative analysis and interviews. No significant difference in medication compliance between

two cardiovascular disease risk groups was found, also not after controlling for age, sex, and ethnicity. The odds of medication adherence in females were 1.531 times higher than in males but the difference was not statistically significant.

CONCLUSION

Patients on HTN, CCF and IHD should be carefully evaluated for detection of adherence of medicine. Strategies for detecting the level of adherence of cardiovascular medicines should be developed.

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