RESEARCH ARTICLE

PREVALENCE OF CONCENTRIC LEFT VENTRICULAR HYPERTROPHY IN NEWLY DIAGNOSED HYPERTENSIVES BY ECHOCARDIOGRAPHY IN KASHMIR

Mushtaq laway1, Hilal Ahmad Dar2, Khurshid Ahmad Para3, Nisar Ahmad Sheikh4,
S.K.Thusu5 and Mohd Dilawar Mir6

1,3Senior Resident Internal Medicine Skims Soura
2Senior Resident Medicine, GMC Srinagar
4 Postgraduate GMC Srinagar
5 Professor Internal Medicine Skims Soura
6 Senior Resident Ophthalmology Skims Soura

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ABSTRACT

Background The present study was conducted to determine the prevalence of centric left ventricular hypertrophy in newly diagnosed hypertensive patients by echocardiography and also to compare the sensitivity of echocardiography over the electrocardiography for the detection of left ventricular hypertrophy in such patients.

Study Design Hospital based prospective study.

Methods Fifty newly diagnosed hypertensive patients as per the JNC VII guidelines were included in this collaborative study of Dept. of Cardiology and Internal Medicine of Sher-i-Kashmir Institute of Medical Sciences, Srinagar. ECG of all these patients was done and this was followed by echocardiography and left ventricular mass and mass index were calculated. Sokolow-Lyon criteria were used to diagnose LVH echo cardio graphically.(4)

Results Echocardiography revealed LVH in 42% of hypertensive patients, while only 16% of hypertensive patients fulfilled the electrocardiographic criteria for LVH. In our study we found that echocardiography is more sensitive than electrocardiography in early detection of LVH in newly diagnosed hypertensive patients.

Conclusion It is concluded that echocardiography to be more sensitive than electrocardiography in early detection of LVH in newly diagnosed hypertensive patients. Thus left ventricular hypertrophy in hypertensive population can be unmasked by using Echocardiography as a base line screening tool than Electrocardiography. Thus while managing a patient with Hypertension the goal should be regression of LVH along with reducing BP to target level as the LVH is an independent risk factor in Hypertension.

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INTRODUCTION

Hypertension is one of the important public health problems. Hypertension is defined as the presence of blood pressure elevated to a level that places patients at increased risk for target organ damage in several vascular beds. Clinically Hypertension is characterized by a blood pressure more than 140/90mmHg[1]. Echocardiography has revolutionised the diagnosis of LVH because Echocardiographic evidence of LVH occurs in 30 to 40 percent of hypertensive patients whose ECG and chest X-ray are normal[2]. Left ventricular hypertrophy is a serious condition, strongly associated with the development of coronary artery disease, cerebrovascular disease, cardiac failure, sudden cardiac death, and overall mortality. So, while managing a patient with Hypertension the goal should be regression of LVH along with reducing BP to target level. ECG is not as good as ECHO to detect LVH, so wider use of Echocardiography is advocated.

MATERIALS AND METHODS

The present study was conducted from May 2008 to Oct.2010 in the Departments of Cardiology and Internal Medicine of Sher-i-Kashmir Institute of Medical Sciences, Srinagar. Fifty newly diagnosed hypertensives as per the JNC VII, Seventh Report of Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood pressure[3] guidelines were recruited for the study.

General physical examination of the patients was done and detailed history was taken. Blood pressure(Systolic, Diastolic and Mean Blood pressure) were recorded. Body surface area and body mass index were calculated. All the patients were subjected to a standard 12 lead ECG. Sokolow-Lyon criteria(S in V1 + R in V5 or V6 ≥35mm) were used to diagnose LVH by echocardiographically.(4).The patients were then subjected to 2-D echocardiography.
Left ventricular posterior wall thickness (LVPWT), left ventricular internal diameter (LVID) and interventricular septal thickness (IVS) in both systole and diastole were measured. Left ventricular mass index (LVMI) was calculated by using formula given by Deveruex, RB et al (5).

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LVMI = 0.8(1.04)(IVS + LVID + PWT)^3 - (LVID)^3 + 0.6g
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Left ventricular mass index (LVMI) was calculated and left ventricular hypertrophy has been defined with the LVMI of 125 gm/m^2 or more.

**RESULTS**

The mean age of males were 43.73 years and females of 33.22 years. Out of 50 patients LVH was present 21 (42%) with mean LVMI of 165.86. Electrocardiographically we detect LVH in 8 out of 50 i.e. 16% patients only. It showed that echocardiography more sensitive than electrocardiography in detection of left ventricular hypertrophy.

**DISCUSSION**

It is now well established that LVH either determined by Electrocardiography or Echocardiography is a strong predictor of poor prognosis in cardiovascular disorders. Echocardiography provides direct information concerning LV wall thickness and chamber size. Increased LV mass is also used as a diagnostic standard because the formula takes into consideration LV wall thickness and diastolic dimension presumably defining LV hypertrophy more accurately than increased LV wall thickness or LV enlargement alone. (6) In our study we found LVH in 42% by echocardiography and only 16% by ECG, thus proved echocardiography better diagnostic armamentarium as compared to electrocardiography in detection of LVH in patients with hypertension. María A et al (7) has shown the prevalence of LVH in patients with hypertension was 32% by echocardiography and 9% by electrocardiography. Adewole A et al (8) in their study found the prevalence LVH in hypertension ranged between 30.9-56.0% as detected by echocardiography. In our study we found no significant correlation between age and LVH on echocardiography as well as on electrocardiography which correlates with the study conducted by Ganau A et al (9). They confirmed that age has no correlation with left ventricular mass index.

**References**